The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXV, No. 3 CHICAGO, ILLINOIS JULY 17, 1915

INTRASPINAL THERAPY IN SYPHILIS OF THE CENTRAL NERVOUS SYSTEM*

HOMER F. SWIFT, M.D.

NEW YORK

In discussing the subject of local therapy of syphilis of the central nervous system, it is timely to recall some of the problems which are presented in the various phases of this disease. While all the types are due to the activity of the *Spirochaeta pallida*, the amount and kind of treatment are largely determined by a consideration of the localization of the lesion, whether in the cortex, cord, meninges or blood vessels, by the difference in the nature of the response of the various tissues, and by the stage of the disease. The recently introduced laboratory aids in the diagnosis of syphilis of the cerebrospinal axis have allowed us to lose sight of the necessity of making these anatomic distinctions, and there has been a tendency to consider all cases the same when undertaking their treatment.

In the early stages of syphilis we have learned, by means of frequent lumbar punctures, that there are often slight pathologic alterations of the cerebrospinal fluid during the time of the outbreak of the first cutaneous eruption. This does not necessarily mean that there has been a deep involvement of the nervous system, but rather supports our conception that at this early period of the disease there is practically a universal distribution of the virus—that there is a rash on the meninges much the same as on the skin and mucous membranes, which usually responds quite readily to treatment. Although in the second or third year of the disease, alterations in the fluid of a similar degree have a much more serious portent, still in the early stage there may be an extensive meningitis and profound functional disturbance which may require the most heroic treatment to eradicate. The functional cure in this stage is, however, more complete than is usually attained with a late lesion of the same extent. This is probably due to the fact that the early lesions are usually meningeal, are exudative, and are not ordinarily attended by actual destruction of nervous elements.

The demonstration of the *Spirochaeta pallida* in paretic brains has resulted in a new classification of the later nervous lesions into (1) interstitial types, which include the lesions previously classified under cerebrospinal syphilis, and (2) parenchymatous types, which include the diseases previously known as parasyphilis. There is also a third type, in which the lesion is essentially vascular and the secondary nervous disturbances are similar to the changes seen in cerebral arterial sclerosis. These are the cases of pure endarteritis syphilitica in which the cerebrospinal fluid shows slight, if any, alteration, and the improvement under treatment depends not on the resolution of a syphilitic exudate in the meninges or nervous tissue, but on the extent to which the endarteritis can be favorably influenced.

In judging the results of treatment, we must consider both functional improvement and improvement in the laboratory findings. In the interstitial forms, which include meningitis, meningo-arteritis and gummas, the disturbance in function is due to edema and pressure of the tumors on nerve tracts or centers, as well as to actual destruction of the nervous tissue. Resolution of the exudate will often result in remarkable functional cures, but if the tracts or centers are actually destroyed, the consequent loss of function cannot be fully restored. In the parenchymatous types, irritation and destruction of nervous elements seem to be the essential features. If the irritative symptoms are due to active inflammatory processes, adequate treatment will probably relieve them; but here also one would not expect the loss in function which had resulted from destruction of neurons to be completely restored. Certainly we see more complete functional recovery in the interstitial types than in tabes and paresis. The abnormal elements in the cerebrospinal fluid also disappear more rapidly under treatment in the former types than in the latter.

While tabes and paresis have been classed together as a distinct type, there are many striking differences in the two diseases. Tabes often responds readily to treatment, both as to arrest of the degeneration and in marked diminution or disappearance of pathologic elements in the cerebrospinal fluid, while it is most difficult to obtain a favorable response in the fluid of paretics in spite of energetic treatment. This may be due to differences in accessibility of the essential lesion. In paretic brains, the spirochete and the round cell infiltration are found scattered through the cerebral cortex, while in tabetic cords spirochetes have not been demonstrated, nor is the essential syphilitic exudate often seen in the most noticeably degenerated areas, namely, the columns of Goll and Burdach. Active inflammatory changes are more often found in the region of the radicular nerves, and the tract degeneration seems to be largely secondary to the radiculitis. The separateness of the dorsal roots may result in greater accessibility to the remedial agent, and it is conceivable that if all the radicular nerves and dorsal ganglia were gathered in one area as in the cerebral cortex, the arrest of tabes might be as unsatisfactory as is the treatment of paresis. Other more essential

* From the Medical Clinic of the Presbyterian Hospital, Columbia University.

* Read before the Section on Syphilis, one hundred and ninth annual meeting of the Medical Society of New York State, Buffalo, April 29, 1915.

differences may exist between tabes and paresis, as is indicated by the different types of curves in the gold reaction.

We should not lose sight of the similarity of the various lesions in lues of the central nervous system, but emphasize the differences, because they apparently have been disregarded in some of the criticisms of the different methods of treatment. To say that all treatment of parenchymatous syphilis is unsatisfactory because paresis has not responded to our efforts, or to declare that because some cases of tabes respond satisfactorily to salvarsan intravenously, intraspinal injections are therefore useless, or because some cases of tabes respond well to intraspinal treatment, all cases of cerebrospinal syphilis should therefore be treated in this way, is illogical; and such an attitude will do much to impede advance in our knowledge of these conditions.

With the demonstration that salvarsan could be safely used in the treatment of lues of the central nervous system, and the biologic proof that all forms of this disease were actually syphilitic in nature, it was hoped that the treatment of all forms of the disease would be quite satisfactory. The desirability of a more effective treatment than mercury and iodids was acknowledged by all, and the liability of cerebrospinal syphilis to relapse after treatment with these drugs was well known. It is unfortunate that we did not have the biologic standards to measure the efficacy of mercury treatment long before the introduction of salvarsan, for today the combined salvarsan and mercury treatment used by almost all physicians has made it difficult to estimate accurately the comparative value of the two drugs. Clinical improvement is of little comparative value, for the majority of patients show improvement under either drug. The large number of relapses after mercury certainly showed the desirability of another remedy, and the rather slow biologic response of many cases under combined salvarsan and mercury treatment has impressed many competent observers with the desirability of some additional method of treatment. The peculiar anatomy of the subarachnoid space, the physiology of the choroid plexus and the cerebrospinal fluid, the pathology of cerebrospinal syphilis, as well as the proof that in acute infections of the meninges, local specific therapy was necessary, all pointed to a probable benefit from some form of subarachnoid application of our therapeutic agents. The problem was to find some substances which could be repeatedly injected without injury to the cord or brain. I wish to emphasize "repeatedly injected" because, if in the treatment of such an acute condition as epidemic cerebrospinal meningitis, several injections of antimeningitis serum are necessary, how much more is prolonged treatment required in a chronic condition like cerebrospinal syphilis.

SUBARACHNOID THERAPY

With the object of finding such substances, Dr. Ellis and I[1] studied the effect of injecting intraspinally the serum of patients who had previously received intravenous injections of salvarsan. Independently Marinesco[2] and Robertson[3] carried on similar investigations. The former reported only one or two treatments without careful observations as to the results; the latter treated some paretics with slight improvement. Since that time, numerous modifications have been suggested and tried. The whole subject of subarachnoid therapy may be outlined as follows:

I. Substances injected:
- (*a*) Neosalvarsan dissolved in water, normal saline or cerebrospinal fluid.
- (*b*) Serum—salvarsanized in vivo:
  1. Human serum.
  2. Serum of animals.
- (*c*) Serum salvarsanized in vitro:
  1. With salvarsan.
  2. With neosalvarsan.
- (*d*) Mercury:
  1. Mercuric chlorid lavage of subarachnoid space.
  2. Mercuric cyanid dissolved in saline.
  3. Mercurialized serum.

II. Mode of application:
- (*a*) Into spinal subarachnoid space by lumbar puncture.
- (*b*) Into cranial subarachnoid space through trephine opening:
  1. Subdurally.
  2. Into third ventricle.
- (*c*) Into large basal subarachnoid cistern through sphenoidal fissure.

(*a*) *Neosalvarsan.*—Wechselmann[4] was the first to inject dilute solutions of neosalvarsan intraspinally. Infants with congenital syphilis and paretics were treated, no ill effects being noted. Marinesco[5] reported bladder paralysis in eight out of thirteen patients who received 5 mg. of neosalvarsan intraspinally, and strongly objected to application of the drug in this manner. Ravaut[6] stated that these injurious effects were due to the hypotonic solution in which the neosalvarsan was injected, and hence recommended from 1 to 4 drops of a 6 per cent. solution, each drop containing 3 mg. of the drug. While he states that he had no unfavorable sequelae in sixty-three injections, in his conclusions he warns against increasing the dose if a patient shows bladder symptoms after an injection. Schubert[7] devised a method of dissolving 0.045 gm. of neosalvarsan in 3 c.c. of cerebrospinal fluid and mixing 0.1 or 0.2 c.c. with 5 c.c. of cerebrospinal fluid which had been allowed to flow into a funnel that was connected with the lumbar puncture needle. Gennerich,[8] in discussing Schubert's technic, says that intraspinal injections carried out in this way are less irritating than when the drug is dissolved in saline. He reports cases in which the patients received from four to six injections of from 4 to 8 c.c. of a one-half pro mille solution in normal saline and developed anesthesias over the buttocks, glans penis and legs and weakness of the vesical rectal sphincters after the fifth or sixth injections. He considers that the previous injections had rendered the cord more sensitive to subsequent injections, and specifically warns against using more than 2 mg. of neosalvarsan intraspinally. In this country, following Wile's[9] enthusiastic endorsement of Ravaut's technic, intraspinal injections of neosalvarsan have been extensively given with a number of unfortunate sequelae. In Wile's[10] own detailed report of fifteen cases, severe symptoms followed the treatment in eight cases. These symptoms consisted of bladder paralysis six times, intestinal atony once, pain in the abdo-

1. Swift, H. F., and Ellis, A. W. M.: New York Med. Jour., 1912, xcvi, 53; The Treatment of Syphilitic Affections of the Central Nervous System, with Especial Reference to the Use of Intraspinous Injections, Arch. Int. Med., September, 1913, p. 331; München. med. Wchnschr., 1913, lx, 1927.
2. Marinesco, G.: Presse méd., 1911, xix, 65.
3. Robertson, G. M.: Edinburgh Med. Jour., 1913, ix, 428.
4. Wechselmann, W.: Deutsch. med. Wchnschr., 1912, xxxviii, 1446.
5. Marinesco, G.: Ztschr. f. diät. u. phys. Therap., 1913, xvii, 194.
6. Ravaut, P.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, xxxvi, 732.
7. Schubert, E.: München. med. Wchnschr., 1914, lxi, 823.
8. Gennerich, W.: München. med. Wchnschr., 1914, lxi, 823.
9. Wile, U. J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, a Preliminary Report, The Journal A. M. A., April 11, 1914, p. 1165.
10. Wile, U. J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, Report of Cases, The Journal A. M. A., July 11, 1914, p. 137.

men once, marked pain in the legs three times, marked ataxia twice, decubitus twice and two deaths following cystitis. The author evidently considered that the picture of increased cord irritation and degeneration which followed the treatments were due to syphilis, when in fact the picture is quite characteristic of the degeneration which not infrequently follows intraspinal injections of both neosalvarsan and salvarsan when more than from 0.5 to 1 mg. is used. Corbus[11] reports that four out of seven patients treated with Ravaut's technic developed bladder paralysis. Gordon[12] reports a fatal case which followed 6 mg. intraspinally. Sachs, Strauss and Kaliski[13] report two deaths in paretics treated in this way, the first followed an injection of 6 mg.; in the second, five injections were borne well; the sixth was followed in three weeks by an acute ascending paralysis of the Landry type. The authors conclude, "In view of these facts we have of late hesitated to urge any form of intraspinous treatment."

The clinical picture following intraspinal injections of neosalvarsan consists in the milder cases of various degrees of urinary retention, and incontinence, rectal paralysis, paresthesias and numbness of buttocks and legs, ataxia in legs, girdle pains, and occasionally trophic ulcers; in the more severe cases, of complete paralysis of the lower part of the body, and death from infection of the urinary tract. Unfortunately a given dose may be well tolerated several times but later be followed by severe symptoms; other patients suffer from their first injection, and some escape injury. Because of the uncertainty of the sequelae, intraspinal injections of neosalvarsan should be given with extreme caution, if at all, and the dose should never exceed 0.5 mg.

(*b*) *Serum Salvarsanized in Vivo.*—1. Serum of patients who have intravenous injections of salvarsan or neosalvarsan. Reference to this method has already been made; the results will be discussed later. In passing I may state that with this method we have never seen the permanent unpleasant sequelae which follow the direct injection of neosalvarsan.

2. Serum of animals which had received large doses of neosalvarsan. This method was suggested by Marie and Levaditi,[14] who hoped to introduce thus larger quantities of the drug. The repeated injection of a foreign protein would, however, produce a most undesirable, if not dangerous, condition of hypersensitiveness. The same criticism applies also to the use of mercurialized horse serum.

(*c*) *Serum Salvarsanized in Vitro.*—1. With salvarsan. Ogilvie[15] has devised a method of adding a small amount of faintly alkalinized salvarsan to human serum, incubating forty-five minutes, and then heating at 56 C. (132.8 F.) for half an hour. The object in this method was to give a known dose of the drug, instead of the uncertain dosage in "serum salvarsanized in vivo." The results in the fifteen cases reported were most encouraging, but the author had three cases with temporary bladder disturbance following the injection of from 2.5 to 4 mg., and emphasizes the necessity of never using more than 1 mg. Draper[16] reports that several of his patients treated with 1 mg. of salvarsan added to serum developed some transient numbness of the legs, in contrast to a lack of these late unfavorable symptoms following injections of the patient's own serum. Fordyce[17] also warns against the addition of more than 0.5 mg., but this year has treated many patients with smaller amounts of salvarsan added to serum without the unpleasant sequelae. Lately I have studied the spirocheticidal effect of serum salvarsanized in vitro and found it superior to serum obtained from patients after salvarsan intravenously. Evidently Ogilvie's modification is an advance in the preparation of serum for intraspinal injection.

2. With neosalvarsan. Marinesco and Minea[18] report on the subarachnoid injection of inactivated serum to which from 6 to 12 mg. of neosalvarsan were added. Two out of nineteen patients treated intraspinally with this serum developed severe bladder disturbances, but the authors make the interesting observation that neosalvarsan can be given much more safely in serum than in saline. In our first communication on intraspinal injections, we reported on the addition of from 0.5 to 1 mg. of neosalvarsan to the serum, but discontinued this form of treatment after the appearance of unpleasant symptoms similar to those noted above.

To review briefly, the subarachnoid injection of neosalvarsan or salvarsan often is followed by characteristic symptoms of irritation and degeneration. These symptoms are more constant when the drug is dissolved in saline than in solutions in human serum. However, it seems safe to inject repeatedly doses of from 0.1 to 0.25 mg. of salvarsan dissolved in human serum, especially if the salvarsan solution is not too alkaline. The ability to estimate the dose of the drug in this way would appear to be of value, although the whole benefit from intraspinal injections does not depend on the salvarsan introduced, as will be later discussed.

(*d*) *Mercury.*—1. Subarachnoid lavage with mercuric chlorid solutions was suggested by Sir Victor Horsley,[19] but on account of the severity of the operative procedure, has not been carried out to any extent.

2. Sicard[20] has recommended a solution of 0.1 mg. mercuric cyanid and novocain in 0.5 per cent. saline for intraspinal injections. He states that he does not attribute the beneficial effects following the injection of this mixture to the mercury but to the increase in permeability of the meninges resulting from the irritation which follows the subarachnoid injection. No detailed reports are available to show the relative value of this form of subarachnoid therapy.

3. Mercurialized serum. Byrnes[21] reports on the use of an albuminate of mercury solution which he prepares by mixing from 1.3 to 2.6 mg. of mercuric chlorid with 12 c.c. of human serum, adding 18 c.c. of normal saline and inactivating at 56 C. This mixture is clear, and apparently can be injected repeatedly without producing any more severe symptoms than are incident to the injection of normal serum. The clinical results, and improvement in the laboratory findings following this treatment seem to have been very good. The desirability of a local application of mercury is apparent, and the method of Byrnes is deserving of careful study. Perhaps alternate injections of mercurialized and salvarsanized serum combined with vigorous general therapy will give better results than any of the methods so far applied.

ROUTE OF SUBARACHNOID INJECTION

The facility with which lumbar punctures may be performed is a great advantage over the intracranial injections.

Marinesco and Minea[18] have used the Neisser-Polock puncture for intracranial injection of neosalvarsanized serum. Sicard and Reilly[22] injected neosalvarsan or mercuric cyanid

11. Corbus, B. C.: Cerebrospinal Examinations in "Cured" Syphilis, THE JOURNAL A. M. A., Aug. 15, 1914, p. 550.
12. Gordon, Alfred: Unfavorable Complications Following an Intradural Injection of Neosalvarsan, THE JOURNAL A. M. A., Nov. 21, 1914, p. 1851.
13. Sachs, Strauss and Kaliski: Am. Jour. Med. Sc., 1914, cxlviii, 693.
14. Levaditi, Marie and de Martel: Compt. rend. Soc. de biol., 1913, lxxvi, 567.
15. Ogilvie, H. S.: The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength, THE JOURNAL A. M. A., Nov. 28, 1914, p. 1936.
16. Draper, George: Effect of Intravenous and Intraspinal Treatments on Cerebrospinal Syphilis, Arch. Int. Med., January, 1915, p. 16.
17. Fordyce, J. A.: The Treatment of Syphilis of the Nervous System, THE JOURNAL A. M. A., Aug. 15, 1914, p. 552.
18. Marinesco and Minea: Rev. neurol., 1914, No. 5.
19. Horsley, Sir Victor: Neurol. Centralbl., 1910, xxix, 1170.
20. Sicard, J. A.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, xxxvi, 681.
21. Byrnes, C. M.: The Intradural Administration of Mercurialized Serums in the Treatment of Cerebrospinal Syphilis, THE JOURNAL A. M. A., Dec. 19, 1914, p. 2182.
22. Sicard and Reilly: Bull. et mém. Soc. méd. d. hôp. de Paris, 1913, xxxvi, 861.

under the dura in the temporofrontal region, hoping to increase the permeability of this portion of the brain for salvarsan which was subsequently injected intravenously. Berriel[23] injected salvarsanized serum through the sphenoidal fissure into the large basal subarachnoid cistern. Ballance[24] injected as much as 90 c.c. of salvarsanized serum into the lateral ventricles by passing a blunt trocar and cannula through a trephine opening and the cerebral cortex, into the ventricle. The intracranial method has been used for the treatment of paretics, because it was thought that substances introduced into the spinal subarachnoid space did not come into contact with the cerebral cortex. Dandy and Blackfan[25] have shown, however, that there is a rapid diffusion of solutions through the whole spinal and cranial subarachnoid space. Phenolsulphonephthalein introduced into the ventricles appeared in the spinal fluid in from one to seven minutes, and when introduced intraspinally, appeared in the fluid drawn from the ventricles almost as soon. When India ink or lampblack granules were introduced into the subarachnoid space of dogs, at the end of from one to three hours, there was a uniform distribution of the granules throughout the entire cerebral and spinal subarachnoid space. These experiments clearly indicate that intracranial injections have little if any advantage over intraspinal injections, so far as the distribution of solutions is concerned. Therefore, the difference in the ease of operation makes the intraspinal route the one of choice.

OBJECTIONS TO INTRASPINAL THERAPY

Within the past year, some objections as to the value of intraspinal treatment have been raised. These objections may be placed under the following headings:

1. Intravenous methods alone yield equally good results.

2. The difficulty in the technic, the pain from intraspinal injections and the unfortunate results which follow intraspinal injections of neosalvarsan make all intraspinal treatment undesirable.

3. The cerebrospinal fluid sometimes contains arsenic after intravenous injections of salvarsan.

4. The blood serum withdrawn one hour after intravenous injections of salvarsan does not contain sufficient arsenic to render it of any value for intraspinal injection.

1. While it is evident that intravenous injections of salvarsan are of great benefit in the treatment of syphilis of the central nervous system, and in many instances are sufficient to effect a functional cure or arrest of degeneration and change the cerebrospinal fluid to normal, still in other cases the conditions are apparently stationary under vigorous general treatment but yield when intraspinal therapy is instituted. The literature contains many such examples. Fordyce[17] gives in detail several such cases. Eskuchen[26] says, "It is remarkable that cases showed rapid and noticeable improvement after combined intraspinal and intravenous therapy where other treatment had been fruitless." Ayer[27] made similar observations. Furthermore, the numerous modifications of subarachnoid methods are striking proof of the apparent desirability of local therapy.

2. Although the technic of intraspinal injections is more difficult than that of intravenous injection, this difficulty is not insurmountable and in many instances the additional effort is justified. The pains following injections of human serum are transitory, and only occasionally are they severe enough to make this form of treatment impossible. A few cases of severe aseptic meningitis have been reported following intraspinal injections of human serum, but these accidents are not frequent enough to cause the method to be discarded. The unfavorable sequelae which follow intraspinal injections of 1 mg. or more of neosalvarsan are sufficient to make injections of this substance questionable, but should not interdict all forms of intraspinal therapy.

3. Numerous workers have shown the relative or absolute impermeability of the choroid plexus for most inorganic substances, and all are agreed that but few drugs which can be demonstrated in the blood after administration by mouth, subcutaneously or intravenously, can be demonstrated in the cerebrospinal fluid. Hall[28] has reviewed the literature on the subject of arsenic excretion, and shown how relatively infrequently has this substance been demonstrated in the fluid after intravenous injection of salvarsan. In his own cases it was not demonstrable following neosalvarsan in five cases, and in only two out of six cases after salvarsan. He calls attention to the importance of having the lumbar puncture needle specially cleaned. With the special technic for arsenic estimation noted below, we have tested pooled fluids up to 100 c.c., which were withdrawn the day following intravenous injections of salvarsan, and obtained almost uniformly negative results, and when arsenic was present the quantities were too small to estimate. In view of all these negative results, the constant positive findings of Sachs, Strauss and Kaliski[13] are hard to explain. It may be that they were fortunate enough to test the fluid from cases in which the permeability of the meninges or choroid plexus was markedly impaired by the syphilitic process.

4. The low arsenic content of the serum seems to have been the chief point of attack by those who have objected to intraspinal treatment. It may be noted in passing that the question is not alone a chemical one but is also biologic in nature. Nevertheless, we have made a number of observations of the salvarsan content of the serum. Repeated tests with the Abelin diazo reaction have shown the presence of the organic radical, and the application of the Ehrlich-Bertheim paradimethylamidobenzaldehyd test has shown that arsenic is present in the form of salvarsan. The arsenic content of the serum has also been estimated by a method which Dr. Vinograd[29] elaborated for this special purpose. This method depends for its accuracy on the oxidation of the organic matter in a sealed bomb so that during the incineration at high temperatures none of the arsenic escapes. In fifteen different patients, twenty-five intravenous injections of 0.5 gm. salvarsan each were given, the blood was withdrawn after one hour, and the serum separated and tested for arsenic content. The accompanying table shows the content per cubic centimeter in terms of salvarsan.

Sixteen of the serums contained 0.01 mg. or more, which would yield at least 0.12 mg. if 12 c.c. were injected, or 0.2 mg. if 20 c.c., the amount now recommended, were injected; and stronger serums yield even more. Benedict[30] found between 0.04 and 0.1 mg. of metallic arsenic in 20 c.c. of whole blood furnished him by Sachs, Strauss and Kaliski. As salvarsan is

23. Berriel, M. L.: Bull. et mém. Soc. méd. d. hôp. de Paris, 1914, xxxvi, 986.
24. Ballance, C. A.: Lancet, London, 1914, i, 1525.
25. Dandy, W. E., and Blackfan, K. D.: Internal Hydrocephalus, Am. Jour. Dis. Child., December, 1914, p. 406.
26. Eskuchen, K.: München. med. Wchnschr., 1914, lxi, 747.
27. Ayer, J.: Boston Med. and Surg. Jour., 1914, clxx, 452.
28. Hall, G. W.: The Presence of Arsenic in the Spinal Fluid, THE JOURNAL A. M. A., April 24, 1915, p. 1384.
29. Vinograd: Jour. Am. Chem. Soc., 1914, xxvi, 1548.
30. Benedict, cited by Sachs, Strauss and Kaliski (Footnote 13).

about one third arsenic, his results in terms of salvarsan were 0.12 to 0.3 mg., figures closely approximating our own for equal quantities of serum. Fordyce and Ogilvie have shown that it is unsafe to add more than from 0.25 to 0.5 mg. to serum for repeated intraspinal injection, and that the injection of these small quantities in serum is followed by decided improvement. Analysis of many of the serums from patients shows that in from 12 to 20 c.c. this amount of salvarsan is often

ARSENIC CONTENT OF SERUM IN TERMS OF SALVARSAN

Number of serums	Salvarsan per cubic centimeter
	mg.
1	0.05
1	0.04
3	0.03
2	0.025
4	0.02
5	0.01
4	0.006
2	0.005
3	0.004
Total 25	Average 0.016

present, so the objection that the serum is useless because of the low salvarsan content seems invalid. Its variability in salvarsan content is a valid objection, and can be obviated by adding definite quantities of the drug in vitro.

ACTION OF INTRASPINAL INJECTIONS OF SERUM

As we have proved that in certain cases of tabes it was possible to reduce the cell count of the cerebrospinal fluid to normal and cause the positive Wassermann reaction to disappear and at the same time to have marked clinical improvement under intraspinal injections of "autosalvarsanized serum" alone, it seemed that the value of such treatments was demonstrated. Moreover, the addition of intraspinal injections to intravenous treatment has apparently hastened the improvement in many cases. The action of the serum may be due to one or several factors.

1. The serum is spirocheticidal.
2. It may contain syphilitic antibodies.
3. The local irritation may increase the permeability of the meninges.
4. The acute irritation produced by the serum may exert a beneficial effect on the chronic inflammatory process.
5. The normal serum may contain substances which, when brought into contact with the syphilitic exudate, cause it to resolve.

1. We[31] have demonstrated that the "autosalvarsanized serum" has a definite spirocheticidal effect which is increased by heating, and Stuhmer[32] has shown it to have similar action on trypanosomes. Although the actual salvarsan content may be small, by subarachnoid injection we bring a definite spirocheticidal substance into close contact with the etiologic agent, a contact which is much more intimate than when the drug is circulating in the blood stream.

2. Although the syphilitic antibodies are not directly demonstrable, it is reasonable to suppose that they exist. It has been demonstrated that the serum of salvarsan-treated patients has a curative effect when injected subcutaneously into infants with congenital syphilis, or into the subjects of acquired syphilis. This curative effect is supposed to be due to an increase in antibodies excited by the salvarsan.

3. Sicard[20] has suggested that the local irritation produced by foreign substances which are injected into the subarachnoid space increases the permeability of the tissues locally, and thus salvarsan injected intravenously is brought into more intimate contact with the diseased tissues; in other words, that the normal barrier between the subarachnoid space and blood stream is partially broken down. Stillman and I[33] have investigated this point experimentally, and have shown that after intravenous injections of salvarsan no more arsenic is demonstrable in the cord or brain of cats that received intraspinal injections of normal saline, normal serum, salvarsanized serum or mercuric cyanid, than in the cord and brains of animals that received no subarachnoid injections. We have also treated patients intraspinally with normal serum, one hour later have given an intravenous injection of salvarsan, and the following day have withdrawn the cerebrospinal fluid and tested it for arsenic, but found that it contained no more arsenic than did the fluid of controls who had not received a previous intraspinal injection. Thus both directly and indirectly it has been proved that the local irritation of the meninges does not apparently increase their permeability for salvarsan which is circulating in the blood.

4. The beneficial effect of acute congestion on chronic inflammatory processes is the well-known theory on which Bier's hyperemic treatment is founded. After intraspinal injections of serum, there is a transitory aseptic irritation which may be of benefit as a local therapeutic measure.

5. The interesting improvement following injections of normal serum in the treatment of psoriasis, dermatitis herpetiformis and other skin diseases suggests that the normal balance of the various substances in the serum may be disturbed by the coagulation of the blood outside the body, thus resulting in the elaboration of some substance having therapeutic value. The subarachnoid injection of this substance might be of benefit. I realize that the last two possibilities are hypothetic; still they are the only explanations for the interesting fact that a number of patients have shown more or less tendency of the cerebrospinal fluid to approximate the normal, and clinical improvement results under the intraspinal injection of their own or normal serum.[34] Nine cases were studied. Two of them showed practically no change in the fluid following repeated lumbar punctures, and the withdrawal of large amounts of fluid. In one, the fluid became normal after six injections of normal serum; in another the Wassermann reaction became negative after six injections of the patient's own serum. Two showed only slight changes under six and seven injections, respectively, of normal serum, but distinct change under injections of salvarsanized serum. Two showed well-marked improvement under eleven and seventeen injections of their own serum, and a third patient only slight change after twelve injections of his own serum. In all of the patients who received injections of their own or normal serum, there was some improvement in one or more of the abnormal elements, in four of them marked diminution in both pleocytosis and Wassermann reaction. Two who were slow in responding to normal serum showed more marked improvement from salvarsanized serum. When we recall that during the period of observation none of the patients received any other antisyphilitic treatment, it is evident that injections of nonsalvarsanized serum were

31. Swift and Ellis: Jour. Exper. Med., 1913, xviii, 435.
32. Stuhmer, A.: München. med. Wchnschr., 1914, lxi, 745.
33. Stillman and Swift: Jour. Exper. Med., to be published.
34. Detailed report of these cases will be given in our complete studies, Rockefeller Institute Monographs.

beneficial. The use of serum as a vehicle for spirocheticidal substances seems, therefore, to be established on a rational basis.

The value of any method of treatment depends in the final analysis on the end-result. I am convinced that our aim should be to bring the cerebrospinal fluid to normal, at least so far as pleocytosis and Wassermann reaction are concerned. Obviously, one should not forget the patient and that treatment should be individualized, but in following both the clinical condition and spinal fluid of a series of patients for several years we have been struck with many instances of parallelism between condition of fluid and general condition of the patient. Our results in thirty-four patients with tabes, in whom observations have extended over at least a year, and some of them nearly five years, three of whom received intraspinal treatment alone, the remainder intravenous and intraspinal injections, are as follows: At the time of the last examination, twenty-five cases, or 73 per cent., had negative reactions with 1 c.c. of fluid. Among these, fourteen cases, or 41 per cent. of the total, had negative reactions with 2 c.c. of fluid, an amount which is double the maximum recommended by Hauptmann and Hoessli. In eight cases the reaction was negative with 1 c.c., but positive with 2 c.c. Three others were not tested with 2 c.c. One case that was negative with 2 c.c. relapsed to positive with this large amount of fluid. One that was positive only with 2 c.c. relapsed to negative with 0.6 c.c. One that was positive with 1 c.c. has relapsed to positive with 0.8 c.c. A number have had negative reactions for from one and a half to two and a half years. The few patients with paresis and taboparesis whom we have treated have not responded so well. Two out of three paretics are dead, the fluid being little affected. A third paretic has responded well both clinically and biologically while under treatment, but had relapsed twice when treatment was discontinued. One taboparetic has responded only slightly, the other better, but has relapsed after treatment was stopped. On the whole, our experience with the few paretics has been discouraging as compared with the satisfactory results in tabetics.

CONCLUSION

We feel that intraspinal injections of "autosalvarsanized serum," or serum to which a small amount of salvarsan or mercury is added, is of distinct help in certain cases of tabes and cerebrospinal syphilis. Not all patients with these diseases require intraspinal treatment. Many of them respond well to intravenous injections of salvarsan combined with mercury and iodids properly administered. In other cases, the symptoms and abnormal cerebrospinal fluids are not controlled by general therapy, and it is in this class that we believe the addition of intraspinal therapy to be of value. Both the clinical side and laboratory evidences of active disease should be considered, and any treatment controlled by repeated examinations of the blood and cerebrospinal fluid. Although the treatment of these diseases should be systematic, it should not be so rigid that individual indications should be disregarded. Not infrequently one sees improvement only after active treatment has been discontinued. Others seem to require constant treatment until all evidences of active disease have disappeared. Only by considering all these factors can consistent beneficial results be obtained.

A REACTION OF THE PUPIL, STRONGLY SUGGESTIVE OF ARTERIOSCLEROSIS WITH INCREASED BLOOD PRESSURE *

MEYER WIENER, M.D.
AND
HENRY L. WOLFNER, M.D.
ST. LOUIS

About six years ago we began to observe a condition of the pupil which seemed always to be associated with patients registering a high blood pressure. A review of the literature and a careful clinical study of a large series of patients seem to confirm our original deductions as to the clinical significance of this sign, which is herein described. Patients afflicted with fundus disease, or with any condition which might interfere in any way with the reaction of the pupil, were not included in our notations.

This pupil is found to be larger than the average normal pupil, with a usual minimum size of 4.5 mm. to 5.0 mm. in width, contracts promptly to light stimulus, but immediately returns to the original size and there remains, without the light stimulus having been changed.

While it is not claimed that this reaction is pathognomonic of arteriosclerosis with high blood pressure, we maintain that its association with arteriosclerosis with high blood pressure is so nearly constant as to make of it a sign that is at least strongly suggestive, and therefore of undoubted clinical value.

CASE REPORTS

The following is a brief summary of a few selected cases from several hundred observations:

Mr. F. C. B., aged 34. Typical arteriosclerotic pupil, with high blood pressure. Examination by Dr. J. S. Myer showed B. P. 170, with thickened arteries. One month later, B. P. 130, and pupil not nearly so typical.

Mr. H. F. H., aged 40. Typical arteriosclerotic pupil, with high blood pressure. B. P. 160.

Mr. R. D. H., aged 54. Typical arteriosclerotic pupil, with high blood pressure. Examination by Dr. R. Tilles who found lues and nephritis, with B. P. 195.

Miss L. L., aged 47. Typical arteriosclerotic pupil, with high blood pressure. B. P. 130.

Mrs. M. A. P., aged 47. Typical arteriosclerotic pupil, with high blood pressure. Examined by Dr. Pendleton. B. P. 162.

Mrs. W. M., aged 56. Typical arteriosclerotic pupil, with high blood pressure. B. P. 250. Later the patient developed albuminuric retinitis.

Mrs. I. D., aged 72. Typical arteriosclerotic pupil, with high blood pressure. B. P. only 125 to 130.

Mrs. J. E. W., aged 67. Typical arteriosclerotic pupil, with high blood pressure. B. P. 145, with indications of hardened arteries.

Mrs. G., aged 69. Typical arteriosclerotic pupil, with high blood pressure. B. P. 150.

Mr. J. W. F., aged 58. Typical arteriosclerotic pupil, with high blood pressure. Examination by Dr. J. S. Myer showed B. P. 170. Later retinal hemorrhages and death from apoplexy.

M. B., aged 69. Typical arteriosclerotic pupil, with high blood pressure. B. P. 170. Later retinal hemorrhages. Death from apoplexy.

* Read before the Section on Ophthalmology at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

It will be seen that a few patients showing the significant pupil revealed a relatively low or normal blood pressure. This we have been unable to explain. On the other hand, when it is reflected that the average age of the above cited patients is nearly 50 years, whereas the pupil around the age of 50 or above is notably smaller than at an earlier period of life, the large size of this pupil is especially significant.

We know, according to experiments of Schlesinger[1] and others, that under repeated stimuli of light, the sphincter pupillae becomes exhausted, and the pupil slowly returns to its original, or nearly original, size. He also found that the reflex time, or time between the impact of the light wave and contraction, increases with each new illumination. This fact must be borne in mind in making tests for the pupillary reaction.

Again, we must not confuse this with the enlarged pupil described by Oppenheim,[2] which contracts to daylight but does not respond to sudden illumination from a pocket flashlight. Oppenheim explains this failure to respond as being due to the fact that fright causes an emotional dilatation, which compensates the normal contraction.

A rebound pupil has been described by Fry,[3] to which he ascribed no particular clinical significance, except that he found it associated with cases of syphilis and neurasthenia.

A myotonic pupillary reaction similar to our own, but which is characterized by a slow recovery from the contraction produced by either light or accommodation stimulus, is described by Saenger,[4] and considered by him to be a symptom of early tabes or general paresis.

Magitot,[5] describing a case in detail in which the pupil, after contracting, remained so for six seconds, requiring one and one-half minutes then slowly to return to the original size, believes this condition to but primary to the usual spinal miosis of tabetics.

Dilatation of the pupil occurs in melancholia, but with no change in the light reaction.

Bumke,[6] in his work on pupillary disturbances in nervous diseases, devotes a special chapter to the changes due to fatigue. He concludes, from clinical observations, that in many states of nervous exhaustion and physical fatigue, in extreme hunger, as well as in anemic patients, the pupil is often noticeably widened. He made personal observations on insane persons who had refused all nourishment, whose pupils were dilated to the maximum on entering the institution, and which, within a few days, had returned to their normal size after forced feeding. He also noticed that the pupils of attendants to insane patients were always wider on the morning after having been up the entire night with the patients, than they were in the same attendant after having slept throughout the night. The reaction to light, however, was increased. These results were confirmed in experiments made by Weiler.[7] They both consider this phenomenon to be due to increase in the sensitiveness of the gray matter rather than tiring of the sphincter, which is not apt to be strained much in a dimly lighted sleeping room. These are all undoubtedly produced by some toxic substance created by incomplete oxidation, as the symptoms all disappear with sufficient rest.

In 1899, Lewandowsky[8] called attention to the fact that intravenous injection of adrenal extract caused, among other phenomena, a dilatation of the pupil, and Weiler, in commenting on this observation, remarks that the dilatation of the pupil which we see during prolonged increased blood pressure is probably due to an overproduction of epinephrin in the blood stream, or some similar poisoning. Experiments have shown also that together with a rise in blood pressure, epinephrin causes a degeneration of the muscle layer and a consequent production of lesions resembling to some extent those of arteriosclerosis.

Some preliminary experiments on the relation of the size of the pupil to blood pressure, made in the physiologic laboratory of Washington University Medical School under the direction of Professor Erlanger and Associate Professor Garrey, seem to verify the fact of the pupillary enlargement during increased blood pressure. These experiments, however, have only just begun, and a full report will be made later.

It seems needless to remark that in making a test for this or any other reaction, the light intensity, distance, and angle of illumination should always be the same, and that the eye to be examined should always be in the same condition. The light should also be thrown in from both sides so as to eliminate hemianopic pupil.

Swanzy, in "Norris and Oliver," says, "The condition of the pupils, whether normal, contracted or dilated, is of very slight significance or value in the diagnosis either of the condition or of the kind of any intracranial lesion, and yet, slight in value as is the state of the pupil in cerebral cases, there is probably no symptom which receives more regular attention from the clinicist in his note taking." This sentence is quoted by Edward Jackson[9] in a paper on "Suggestions of the Pupil in General Disease," who adds, that "to anyone who is on the lookout for clues that he may be able to follow to a positive diagnosis, for suggestions of a possible explanation of the case before him, the pupil is enormously suggestive."

We feel, therefore, that in presenting this hitherto undescribed, as we believe, reaction of the pupil for further consideration, we have at least added a *clue*, or something *enormously suggestive*, in reaching out for a diagnosis.

ABSTRACT OF DISCUSSION

DR. WALTER S. FRANKLIN, San Francisco: The authors of this paper are to be complimented on presenting a sign in ophthalmology which may be of help in arriving at a diagnosis of the patient's general condition. To use their term, this reaction may be "enormously suggestive." Ordinarily the value of the pupillary reaction is greatly overestimated. Our knowledge of the globe itself and condition of its nerves is more readily gained through the use of the ophthalmoscope,

1. Schlesinger, E.: On the Threshold Value of the Pupillary Reaction and Extent of Pupillomotor Area of the Retina, Deutsch. Ztschr. d. Nervenh., 1912, xlv, 351.
2. Oppenheim, H.: Remarks on Testing the Pupillary Reaction, Neurol. Centralbl., 1911, xxx, 362.
3. Fry, F.: The Rebounding Pupil, Jour. Nerv. and Ment. Dis., 1913, xl, 437.
Stieren, E.: The Pupil in Health and Disease, Pennsylvania Med. Jour., 1911-1912, xv, 686.
4. Saenger, O.: A New Pupillary Reaction, Neurol. Centralbl., 1896, p. 1007.
5. Magitot, A.: Rec. d'opthal., May, 1911, p. 151. Bach, L.: Pupillenlehre, S. Karger, Berlin, 1908.
6. Bumke, O.: New Investigations Regarding Diagnostic Significance of Pupillary Symptoms, München. med. Wchnschr., 1907, liv, 2315; Pupillary Disturbances in Insane and Nervous Patients, G. Fischer, Jena, 1904.
7. Weiler: Examination of the Pupil and Iris Movements, Ztschr. f. Gesammt. Neurol. u. Psychol., 1910, ii, 101.
8. Lewandowsky, M.: Effect of Adrenalin on Smooth Muscles, in Particular the Eye, Arch. f. Anat. u. Physiol. (Physiol Abt.), 1899, p. 360.
9. Jackson, E.: Suggestions of the Pupil in General Disease, Am. Jour. Med. Sc., 1908, cxxxvi, 556.

the testing of central and peripheral vision—the color sense and minimal light sense. The majority of pupillary reactions and reflexes are not sufficiently constant to be more than suggestive. A number of reflex dilatations or pain reactions have been described, due to thermic and physical irritation of the skin, the conjunctiva and the cornea. Others mention fear, pain, crying, etc., as psychical examples. Haab calls attention to a psychical reaction due to suggestion of light.

Since receiving the reprint of this paper I have observed 100 cases of acknowledged blood pressure. The ages ranged from 40 to 70 years and the blood pressure averaged 180. In 65 cases the pupils were larger than average pupils of this age. In but 54 cases could I demonstrate the high blood-pressure reaction which has been described. On the other hand, I examined the pupils of 100 people ranging from 40 to 70 years of age who had apparently normal blood pressure for their time of life. It is interesting to note that here also numerous cases presented with larger than normal pupils, namely, 29 per cent. In 12 per cent. the higher blood-pressure reaction could be demonstrated. This gave a difference of 36 per cent. having larger pupils, in favor of those having high blood pressure. Also 42 per cent. more gave the high blood-pressure reaction than there were without it. While this shows some value of the symptom, it was by no means constant or nearly so.

The method of examining the pupillary reactions is of importance. I note that the authors do not state their procedure. The refraction of the eye somewhat determines the pupillary reaction. Our cases were examined in a dark room having but one source of illumination, namely, an electric lamp, and the patients sat at a uniform distance and were told to fix the light steadily. The observer repeated the tests six times on each patient so as to get an average and reduce to a minimum the psychic dilatation of fatigue, fright, etc., described by the authors. It is likely that different methods of examination will bring out discrepancies.

DR. EDWARD JACKSON, Denver: After reading Dr. Wiener's paper I looked for the sign in the few cases of high blood pressure encountered and found it in about two-thirds of them. The reaction, I took it, might be to some extent an indication of the lack of endurance, similar to the quick contraction and then quick and rather marked redilatation seen in asthenic conditions, the pupil soon returning to its original size. The authors of the paper have not attempted any explanation, but it occurs to me that the large pupil might be associated with changes in the vessel walls of the iris. If that is the case it may be the sign of arteriosclerosis, a point of value. The vascular lesions seen with the ophthalmoscope are found to be of more importance than the readings of the sphygmomanometer. The upper limit of normal blood pressure is often put too low. I use the rough rule of adding 100 to the patient's age as the probable upper normal limit of blood pressure. But high blood pressure shown by the sphygmomanometer is not regarded by me as of the greatest importance. Changes in the retinal vessels are more to be depended on. Changes in the vessels of the iris as indicated by this sign may have the same significance and value as those seen in the retina.

DR. MEYER WIENER, St. Louis: Regarding our method of examining the pupils, in reply to Dr. Franklin's questions, the tests were always made in a dark room, except in hospital cases. The light was thrown in from a mirror from first one side and then the other, from every direction. We always tried to eliminate the accommodation as far as possible. As to the effect of fatigue on pupillary reaction when light is thrown into the eye a given number of times, each time the pupil reacts more slowly and must be allowed to rest after the test is repeated a number of times. In hospital wards we generally have used a small electric light and flashed that in the eyes we were testing, also eliminating accommodation. The association of high blood pressure with pupillary reaction has been given special attention in the medical department of Washington University, and they have found that very regularly the enlarged pupils were associated with high blood pressure. The cause may be due to the holding power of the iris, or possibly due to the increased amount of adrenal principle in the blood. This was suggested to me by Dr. Dock of Washington University, and we expect to experiment along this line in the future. Dr. Franklin, however, has not found the two symptoms associated nearly as constantly as we have found them. Possibly the reason is that his tests were made with a fixed light; otherwise he has not eliminated the accommodating power, if I understand it rightly.

IMMEDIATE RESULTS OF SPLENECTOMY IN PERNICIOUS ANEMIA*

ROGER I. LEE, M.D.
BETH VINCENT, M.D.
AND
OSWALD H. ROBERTSON, M.D.
BOSTON

Recently splenectomy has been advocated as a therapeutic procedure in pernicious anemia. Eppinger,[1] Moffitt,[2] von Decastello[3] and others have discussed the theoretical and experimental evidence for the assumption that the etiologic factor of pernicious anemia resides in the spleen. Isolated case reports of splenectomy in pernicious anemia have appeared in the American and English literature.

We desire to present five out of seven cases of typical pernicious anemia which were admitted to the West Medical Service during a period of approximately two months, extending from Nov. 12, 1914, to Jan. 9, 1915. Of the two cases in which operation was not performed, one patient was moribund at admission and died in three days, in spite of transfusion. The second was in very poor condition with a red count of 500,000, and died before a donor could be procured for transfusion. Thus it can be fairly said that the series of cases in which operation was performed was in no way a selected one.

The remaining five patients operated on were all men between the ages of 31 and 54 years showing varying grades of anemia. In two cases the anemia was so great that transfusion was performed before splenectomy. With one exception they had been able to do very little or no work for a year or more.

It was carefully explained to each patient that splenectomy in pernicious anemia was an experimental procedure. No definite hope of cure was offered. The operation was not urged. It can be fairly stated that the patients accepted operation with full appreciation of its danger and of our lack of definite information as to its ultimate result.

A brief history of each case will be given, together with the blood findings and other laboratory data both before and after operation.

CASE 1.—*History.*—L. N. H. (Hospital No. 19864), man, aged 43, entered the hospital for the second time Nov. 12, 1914. Family and past histories were essentially negative. The present illness began two and a half years ago, during which time he has had six attacks of pallor, weakness and dyspnea lasting from two to three months and followed by definite remissions. The attacks have become increasingly severe, and the last one was accompanied by diarrhea. The patient was in the hospital during the fourth attack, at which

* From the West Medical Service, Massachusetts General Hospital, Dr. Richard C. Cabot, Chief of Service.

1. Eppinger, H.: Berl. klin. Wchnschr., 1913, 1, 1509.
2. Moffitt, H. C.: Am. Jour. Med. Sc., 1914, clxxv, 817.
3. Von Decastello, A.: Deutsch. med. Wchnschr., 1914, xl, 692.

time he had a red count of 852,000, hemoglobin was 25 per cent. and the spleen was palpable. Previous treatment had consisted in Fowler's solution over a period of months, also one dose of salvarsan intravenously two months ago.

Physical examination in this, his sixth attack, was negative except for lemon-yellowish tint to skin and blood. Red count, 2,525,000; hemoglobin, 60 per cent.; white count, 5,000; neutrophils, 65 per cent.; basophils, 29 per cent.; eosinophils, 3.5 per cent.; mast cells, 2.5 per cent. The red cells showed much variation in size and shape, good color, some polychromatophilia, no blasts, platelets somewhat decreased in number. Resistance of red cells to salt solution; beginning hemolysis at 0.475 per cent., complete hemolysis at 0.30 per cent. sodium chlorid. Urobilin in stools increased. Wassermann negative.

Operation and Result.—Splenectomy was performed by Dr. Vincent, November 25. November 26, the white count was 26,400. This gradually came down to 14,000 by December 3. November 27, the blood picture showed 5 per cent. normoblasts and 2 per cent. megaloblasts (per hundred leukocytes), which increased in number for several days and then gradually diminished. Howell-Jolly bodies appeared at the same time as the blasts and persisted till discharge. The reticulated cells were not increased in number—less than 1 per cent. The platelets began to increase at the end of a week and were present in large numbers. The red count had not changed when the patient left the ward three weeks after operation, but the hemoglobin had increased to 75 per cent. and the red cells showed much less variation in size and shape. There was a white count of 8,200 with a 10 per cent. eosinophilia; neutrophils and basophils were in the same relative proportion as before. The urobilin in the stools had dropped to normal. Resistance of red cells two weeks after operation, 0.55 to 0.25. The patient felt much stronger, but weighed 13 pounds less than at entrance. Two and a half months later his physician reported that his red count was 4,000,000 and he had gained 30 pounds.

March 11, three and a half months later, he was seen; the red count was 5,028,000; white count, 9,600; no eosinophilia; hemoglobin, 80 per cent. The red cells showed a good color; the average cell was definitely larger than normal; there were many macrocytes and an occasional microcyte and poikilocyte. Howell-Jolly bodies were present in large numbers and platelets were increased over normal; there was no polychromatophilia; resistance of red cells, 0.525 to 0.25.

While he looked and seemed well and his actual blood counts were essentially within normal limits, yet he still presented an abnormal blood, not only in regard to the presence of Howell-Jolly bodies, but also in the microscopic appearance of the red cells. There was no marked distortion of the red corpuscles, yet their general appearance, large size, etc., was fairly typical of the appearance of the red corpuscles in primary pernicious anemia.

CASE 2.—*History.*—F. L. M. (Hospital No. 198718), man, aged 54, entered the hospital for the second time, Nov. 16, 1915. Family and past histories were negative. The present illness began three years ago, since when he has had two other attacks at yearly intervals, each lasting longer than the preceding one. The first two were followed by remissions. He is still suffering from the third attack, which began six months ago. There has been numbness of the hands and feet recently and a loss of 10 pounds in the past year. No gastro-intestinal symptoms except pain in epigastrium. No systematic course of treatment was followed.

Physical examination shows the characteristic coloring of the skin, a palpable spleen and marked edema of lower legs. Visceral examination negative. Blood, red count, 736,000; hemoglobin, 15 per cent.; white count, 3,000; neutrophils, 70 per cent.; basophils, 30 per cent. The red blood cells show marked variation in size and shape, polychromatophilia, no blasts, and diminished platelets. Resistance of red cells, 0.475 to 0.30. Wassermann negative. The urobilin in stools was high. He grew rapidly worse, becoming edematous and drowsy. The red count dropped to 574,000 and hemoglobin to 12 per cent. November 22, he was transfused, receiving 600 c.c. of blood. Immediately after transfusion the red count was 1,600,000, hemoglobin 50 per cent., and the blood showed many normoblasts, which persisted for two days and then disappeared. Within six days after transfusion, the red cells had reached 3,164,000, hemoglobin 60 per cent., the platelets increased to about normal. The patient improved much symptomatically. December 7, he had a sudden attack of generalized convulsions followed by coma lasting from six to eight hours, for which no cause could be found. This cleared up rapidly. By December 22 his red blood count was about 3,000,000; platelets had become much diminished and he was still in bed and quite weak.

Operation and Result.—Splenectomy was performed by Dr. Vincent; the next day the white count was 24,400; an occasional normoblast and Howell-Jolly body appeared. The reticulated cells were not increased. By the end of a week the Howell-Jolly bodies and platelets were present in large numbers, but the blasts had disappeared and the white count had fallen to 11,000. The red count showed very little change till the fifth week, when it rose to 4,160,000. However, this rise was followed by a drop during the next three weeks to 2,600,000, when the patient left the ward. In spite of this drop the quality of the blood had improved much as the red cells showed little variation in shape and much less in size than before splenectomy. Macrocytes were still frequent and Howell-Jolly bodies persisted. The hemoglobin remained at 60 per cent. and the urobilin in the stools dropped to normal and the resistance of the red cells at the time of discharge—eight weeks after splenectomy—was 0.70 to 0.225. The patient's convalescence was a rather stormy one. On the tenth day after the operation, from which he suffered very little shock, a severe diarrhea began, and within a few days he was passing pus and blood. This condition persisted for three weeks and was followed by a phlebitis, first of the left leg and later of the right. However, by the end of two months he was able to leave the hospital, feeling much better than at entrance, but weighing less. March 21, almost three months after splenectomy, the patient reported. His red count was 4,168,000; hemoglobin, 75 per cent.; white count, 15,400; lymphocytes, 64 per cent.; polynuclear leukocytes, 36 per cent. He was feeling better than at any time for several years and had gained 13 pounds since discharge. Two weeks later he was seen again and was still gaining weight. At this time the red count was 3,968,000; hemoglobin, 73 per cent. The red cells showed some variation in shape with an occasional poikilocyte and much variation in size; macrocytes were frequent. Color of cells, good; frequent polychromatophilia; blasts and Howell-Jolly bodies numerous and the platelets increased. Reticulated reds, 1 to 2 per cent.; fragility, 0.60 to 0.25. Urobilin in the stool was found to be still increased in amount although not so high as before splenectomy.

CASE 3.—*History.*—H. E. B. (Hospital No. 189666), man, aged 31, entered the hospital for the second time Dec. 21, 1914. Family history was negative. For several years preceding the present illness he has had periods of vomiting, abdominal distress and diarrhea every summer, accompanied by slight pallor. The first severe attack in the present illness occurred one and a half years ago, on which occasion he entered the hospital for the first time. Since then he has had two more attacks, each one of greater severity than the last and the subsequent remissions less well marked. The beginning of a fourth attack brought him to the hospital at this time. He has done practically no work since the beginning of his illness. Previous treatment had consisted in Fowler's solution for a short time.

Physical examination was negative except for pallor and blood. Blood, red count, 2,304,000; hemoglobin, 55 per cent.; white count, 3,800; neutrophils, 53 per cent.; basophils, 47 per cent. The red cells show considerable variation in size and shape, macrocytes frequent and average size larger than normal, good color but no polychromatophilia or stippling; platelets diminished. Urobilin in the stools was high. Wassermann negative. Resistance of red cells, 0.40 to 0.275. The patient lost ground rapidly, red count went down to

1,422,000; the hemoglobin remained at 55 per cent. January 5, he was transfused, receiving 600 c.c. of blood. Immediately after transfusion, the red cells numbered 1,648,000 and two days later, 1,920,000. There were no blasts. Frequent large markedly polychromatophilic cells were present and the platelets increased somewhat.

Operation and Result.—Splenectomy was performed January 11 by Dr. Vincent. On the following day the white count was 26,000 with no change in differential count. The blood showed an occasional Howell-Jolly body and a large number of blasts. Within four days the white count had dropped to 8,800, the blasts were still present in large numbers and the Howell-Jolly bodies very numerous. Platelets began to show a very slight increase at the end of the tenth day but increased no further. The red count stayed at about 1,600,000 but the hemoglobin dropped to 45 per cent. By the fourth week, however, the red cells reached 2,200,000 and the hemoglobin 70 per cent., at which time the patient left the hospital. The urobilin decreased markedly but did not reach normal. Fragility, 0.55 to 0.30. At discharge the patient weighed approximately the same as at admission but felt a great deal stronger. Three weeks after leaving the hospital, the patient reported that he had gained 30 pounds since getting up from bed. March 27, two and a half months after splenectomy, he returned for examination. He was looking well, had gained 40 pounds since the operation and was able to do light work all day without fatigue. His blood showed a red count of 4,112,000; hemoglobin, 77 per cent.; white count, 12,500. Red cells showed little variation in shape but marked variation in size. Many microcytes as well as macrocytes with the average size above normal; good color, no polychromatophilia or stippling; an occasional normoblast and large numbers of Howell-Jolly bodies; platelets above normal in number. Reticulated cells rare. Resistance of red cells, 0.52 to 0.25. Urobilin in the stools still considerably increased over normal, although lower than at the time of discharge.

Case 4.—*History.*—T. D. (Hospital No. 199648), man, aged 43, entered the hospital Jan. 8, 1915. Family history was unimportant. Fifteen years ago he had to stop work for a period of nine months on account of being "run down" and feeling weak. The present illness began twenty months ago with a gradual onset of weakness, dyspnea on exertion, and later pallor. These symptoms have grown progressively worse, and recently there have also been vomiting and soreness of the mouth and tongue. No diarrhea; has lost over 40 pounds in weight. No systematic course of treatment had been followed.

Physical examination was negative except for lemon-yellow color of skin and blood. Blood, red count, 1,344,000; hemoglobin, 50 per cent.; white count, 4,400; neutrophils, 67 per cent.; basophils, 29 per cent.; eosinophils, 3 per cent.; mast cells, 1 per cent. Red cells showed marked variation in size and shape, no achromia, macrocytes frequent, occasional poikilocyte, many stippled and polychromatophilic cells. Rare normoblasts, platelets much diminished. Urobilin in the stools high. Resistance of red blood cells, 0.45 to 0.30. Wassermann negative. After eleven days in the ward the red count had dropped to 1,162,000 and the patient felt worse. A donor was procured, as it was thought transfusion would be necessary preparatory to splenectomy. However, at this time there was a shower of "blasts," 14 per cent. normoblasts and 3 per cent. megaloblasts, and within three days the red cells numbered 1,628,000 and the hemoglobin 70 per cent. The blasts soon dropped to about 2 per cent. and there was no further increase in red count or hemoglobin by the end of five days.

Operation and Result.—Splenectomy was performed January 27 by Dr. Vincent. The day following splenectomy the white count was 12,400 with 90 per cent. polynuclears. January 29, two days later, there was a shower of normoblasts, 14 per cent. A rare Howell-Jolly body was seen and the platelets showed a slight increase at the same time. The red count showed a gradual increase dating from splenectomy until discharge, Feb. 11, 1915, when it was 2,640,000. The hemoglobin remained at 70 per cent. The red cells showed considerably less variation in size and shape. The urobilin in the stools dropped to normal. Fragility, 0.425 to 0.225. The patient did not gain weight, but felt much stronger than at entrance.

March 20, approximately two months after splenectomy, the patient returned for examination. He was looking and feeling much improved, but had gained only 4 or 5 pounds since discharge. Mental disturbance was discovered at this time, which may account for the fact that the general improvement had not kept pace with the improvement in the blood picture. However, a month later the patient was seen again. At this time he was looking well, had gained 12 pounds since the last visit to the hospital and felt much stronger. The red count was 4,824,000; hemoglobin, 80 per cent.; white count, 9,800; neutrophils, 47 per cent.; lymphocytes, 50 per cent.; eosinophils, 3 per cent. The red cells showed some variation in size, chiefly in the presence of macrocytes, but very little in shape; good color but no stippling or polychromatophilia; no blasts seen, platelets numerous and Howell-Jolly bodies frequent, reticulated cells not over 1 per cent. Resistance of red cells, 0.50 to 0.27. Urobilin in stools still normal.

Case 5.—*History.*—E. E. W. (Hospital No. 199657), man, aged 44, entered the hospital Jan. 9, 1915. Family and past histories were unimportant. The present illness began one and a half years ago with a mild attack lasting only three weeks and followed by a rather incomplete remission lasting eight or nine months. At the end of this time he began to go down hill again and has been gradually growing worse ever since, but did not stop work until shortly before admission. No gastro-intestinal symptoms. Has lost 40 pounds since onset of disease. Previous treatment consisted of some unknown medicine, probably not arsenic, for the past six months.

Physical examination shows a pale, weak and very sick looking man. Visceral examination negative. Blood, red count, 800,000; hemoglobin, 28 per cent.; white count, 2,000; neutrophils, 42 per cent.; basophils, 55 per cent.; eosinophils, 3 per cent.; red cells vary largely in size and shape, good color, many polychromatophilic cells, "blasts" very frequent, 10 megaloblasts and 15 normoblasts seen in a count of 100 whites. Platelets very few in number. Wassermann suspicious. Resistance of red cells, 0.425 to 0.30. Urobilin high. Within three days the red count had reached 2,300,000; hemoglobin, 57 per cent.; white count, 8,000; the platelets increased and the blasts had disappeared almost entirely. He felt and looked much better. This improvement did not continue, and, in fact, at the end of two weeks his red count was slightly under 2,000,000; white count, 5,000; platelets, however, were numerous.

Operation and Result.—Splenectomy, January 28 by Dr. Vincent. The next day there was an occasional Howell-Jolly body present, the white count was 10,400, with 91.7 per cent. polynuclears. This count increased to 14,800 and then dropped to its former level in three days. Blasts did not increase noticeably till the fourth day after operation. The red count eight days afterward was 2,360,000; hemoglobin, 60 per cent. These increased to 2,840,000 red cells and 70 per cent. hemoglobin by the time of discharge, February 12, two weeks after operation. The red blood cells showed slightly less variation in size and shape. Fragility, 0.475 to 0.25. The urobilin in the stools was normal. The patient was feeling much improved when he left the hospital, but his weight was the same as at entrance. He went back to work almost immediately after leaving the hospital, and has worked practically every day since, but gets tired rather easily. April 13, two months and a half after splenectomy, he reported for examination. At this time he was looking somewhat pale. His general improvement did not seem to be nearly as marked as in the other four patients; however, he was feeling stronger than at any time during the previous year and a half. Red count, 2,504,000; hemoglobin, 60 per cent.; white count, 6,000. The red cells showed considerable variation in shape with an occasional poikilocyte; much variation in size; macrocytes frequent. The majority of the cells showed good color but

many were achromic and an occasional polychromatophilic cell was seen; frequent normoblasts and large numbers of Howell-Jolly bodies present; platelets slightly diminished. Reticulated reds not increased. Resistance of red cells, 0.57 to 0.25. Urobilin in the stool increased.

PATHOLOGY OF THE SPLEENS

In two cases the spleens were larger than normal, weighing, respectively, 192 and 237 gm. The other three spleens ranged from 137 to 167 gm. Grossly, there was nothing abnormal in their appearance. Microscopically, the changes seen were slight. Two of the three showed evident congestion of the pulp with rather fewer cells in the sinuses than normal. In two, many normoblasts were seen but not in clumps. One showed a few areas of primitive erythroblasts such as are seen in the bone marrow, suggesting the possibility of blood formation in the spleen itself. There was no evidence of increased phagocytosis, no fibrosis or pigmentation. This absence of any striking pathologic change agrees in general with the findings reported by other writers. Moffitt in his recent review of the subject finds hyperemia of the pulp and thickened arteries more constantly present than was the case in this series.

SUMMARY OF THE BLOOD FINDINGS

In all the five cases, directly after splenectomy there was a marked but transient leukocytosis, a shower of blasts and the appearance of Howell-Jolly bodies. At the end of a week or ten days the platelets began to increase. In one case this increase occurred even earlier. All these findings suggested definite stimulation of the bone marrow. The red count and hemoglobin showed very little change for the first two to three weeks after operation. However, by the fourth week there was an increase of about a million red cells and a rise of from 10 to 15 per cent. in hemoglobin. The qualitative improvement in the blood during the first four weeks was in the majority of cases greater than the numerical increase, that is, the red blood cells were more regular in size and showed fewer distorted forms.

After periods of from two to three and a half months (following splenectomy) four of the cases showed a red count of between four and five million and a hemoglobin of from 73 to 80 per cent., color index of 1 or less. Nevertheless, the appearance of the red cells, particularly the presence of frequent large forms, was still characteristic of pernicious anemia blood. The fifth case showed very little change in the blood picture after the patient left the hospital, except that the color index had come down to 1. In our experience it is unusual in pernicious anemia even in the remissions to have a color index of 1 or below.

The red blood cells showed a constantly increased resistance to hypotonic salt solutions within from two to three weeks after splenectomy. In two cases, hemolysis was not complete till 0.225 per cent. was reached. There was also a tendency for hemolysis to begin above normal; in one case hemolysis began at 0.70 and was not complete till 0.225. A change in the fragility of the red blood corpuscles has been observed after experimental splenectomy in dogs, and is probably not characteristic of pernicious anemia. Howell-Jolly bodies appeared very soon after splenectomy, and were still present in large numbers when the cases were seen from two to three months later. These small, round, darkly staining bodies found in the red blood cells, and considered to be nuclear fragments, do not occur in normal human blood. They are found in the red blood cells in cases of congenital hemolytic jaundice and after splenectomy in man as well as in certain kinds of animals. The presence of these bodies seems to indicate a much increased bone marrow activity.

The number of reticulated red cells was not increased at any time. These cells occur in large numbers in congenital hemolytic jaundice, and seem to be associated in this condition with the increased bone marrow activity, since they represent a type of immature cells. Their absence in this series of cases following splenectomy is quite striking in view of the large numbers of Howell-Jolly bodies present.

The immediate decrease in the quantity of fecal urobilin[4] following splenectomy indicates that a marked diminution in the degree of blood destruction had taken place. This became normal in four cases, and in the fifth, which showed the highest output before splenectomy, there was a marked drop. The later return to an increased urobilin excretion in Cases 2 and 3 suggests that the cause or causes of excessive blood destruction had not been completely removed.

This evidence of increased blood destruction, together with the abnormal blood picture, indicates strongly that the patients are still suffering from pernicious anemia. However, a marked change has come about in the relation of blood production to blood destruction. In Cases 2 and 3, which show red counts of approximately 4,000,000, the bone marrow is apparently fairly well able to compensate for the abnormal blood destruction going on. In Case 5 the compensation is not so good. The persistence of many normoblasts in the blood of all three of these patients indicates the marked bone marrow activity present. Cases 1 and 4 show a more striking alteration still in this relationship. In these two cases the abnormal blood destruction has ceased, thus obviating the necessity of excessive blood production. The blood supports this assumption in that, with the exception of the presence of Howell-Jolly bodies, there is much less evidence of increased activity on the part of the bone marrow.

It has been suggested that the hemolymph and other glands in these long-standing cases of pernicious anemia may acquire hemolytic functions, thus accounting for the abnormal blood destruction which persists after splenectomy. We see no reason to accept this theory; but, if true, it would be an argument for operation early in the course of the disease.

Symptomatically, the improvement during the first few weeks succeeding splenectomy was much greater than the blood picture would indicate. The appetite improved, the patient gained strength, his mental attitude became much more hopeful and there was a consistent increase in weight. Later reports show that with the exception of Case 5, this improvement has continued and that the patients are in better condition now than at any time since the onset of the disease.

In deciding the question of the time of operation, the most important consideration was the direction which the disease was taking. When the patient was failing, transfusion was performed before operation. Besides increasing the number of red cells temporarily

4. A detailed study of urobilin in pernicious anemia will be given in a later communication.

and apparently checking the relapse in some cases, transfusion has often initiated a remission. The remission, it is true, may be very incomplete in nature, yet the accompanying improvement in general condition is marked. If the red count is rising or if the patient is holding his own and is in good condition, we felt that it was safe to operate with a red count of anything over 1,500,000.

The operation which was done in all five cases by one of us (Vincent) was performed through a left rectus incision without special incident. Following the operation there was surprisingly little shock or discomfort, and recovery was rapid in every case.

SUMMARY AND CONCLUSIONS

The immediate results of splenectomy in this series of five cases of pernicious anemia was a prompt postoperative recovery and a definite remission of the disease in every case.

The remissions were much more marked than is usually seen in pernicious anemia. In four of the five cases the red counts rose to from 4,000,000 to 5,000,000. The remissions occurred so constantly that we are inclined to attribute them to the operation of splenectomy.

Our study shows that in spite of marked improvement, the blood picture still exhibits the accepted characteristics of pernicious anemia with the exception of the color index, which has been altered from high to normal or low. Furthermore, in three of the five cases, evidence of increased blood destruction was present several months after splenectomy, as shown by the urobilin estimation. These facts we can interpret only as evidence that the disease is not cured. It cannot as yet be stated that the improvement brought about by this means will last longer than the remissions which come spontaneously and which may persist over a period of years. From the very nature of the disease, it will be many years before the exact value of splenectomy can be determined.

The only conclusions we may safely draw from these cases combined with the reports of other writers are:

1. Splenectomy is not a very serious operation in pernicious anemia, and it offers a definite means of inducing a remission.

2. The remission thus brought about is more marked in the majority of the cases than any other known therapeutic procedure.

The School of Bagdad.—It is not surprising then, that the school of Bagdad became celebrated. Jewish physicians seem to have been most prominent in its foundation, and the most distinguished product of it is Isaac Ben Emran, almost as celebrated as a philosopher as he is as a physician. One of his expressions with regard to the danger of a patient having two physicians whose opinions disagree with regard to his illness has been deservedly preserved for us. Zeid, an Emir of one of the chief cities of the Arabs in Barbary, fell ill of a tertian fever and called Isaac and another physician in consultation. Their opinions were so widely in disaccord that Isaac refused to prescribe anything, and when the Emir, who had great confidence in him, demanded the reason, he replied, "disagreement of two physicians is more deadly than a tertian fever." This Isaac, who is said to have died in 799, is the great Jewish physician, one of the most important members of the profession in the eighth century. His principal work was with regard to poisons and the symptoms caused by them. This is often quoted by medical writers in the after time.—Walsh, Makers of Medicine.

ROENTGEN RAY EPITHELIOMA, CURABLE BY RADIUM

AN APPARENT PARADOX *

ROBERT ABBE, M.D.
NEW YORK

At a section meeting of roentgenologists at the British Medical Association meeting two years ago I was impressed by the large proportion of this noble body of workers who had suffered from all degrees of Roentgen-ray injuries, from simple hyperkeratosis to amputation of one or more fingers, or one hand, or both.

I presented to them the possibility of curing the disease in its early stage by radium. Most of them seemed skeptical, but I found one physician from Australia who had suffered, and who had found in his own experience that radium had kept his hands well, as he had repeatedly applied it in this early type for some years. I showed photographs and spoke of cases which I will here quote.

During two years past, I have been more deeply impressed with its importance, as I have treated more cases. Logically, it is clear that if all of the vast number of senile keratoses and early epitheliomas of the face and hands can be cured with certainty by radium, then the early Roentgen-ray growths of the same type ought to yield equally well.

It is in the advanced stage of epitheliomas when the downgrowth of cells invades and envelops the squamous cell layer — followed by growth of pearls, lymphatic invasion and gland metastases — that no efficient action of radium, so far as we can yet see, is beneficial. Then, anything short of amputation or clean excision is without value. Subsequent to the early stage, however, most sacrifices of fingers and hands have taken place. It is to this point I wish to direct attention, for in the early stage I shall show that cure may be assured.

My first case so treated was in 1903. Five years after beginning the use of the Roentgen ray, the patient developed a typical epithelioma of the back of the left hand. One application of radium cured it, and there has been no recurrence after twelve years.

Three years ago a well-known maker of Roentgen-ray tubes came to me with a terrible exhibition of Roentgen-ray cancer of the chin, chest and both hands. One finger had been amputated and much useless surgery done on the other parts. Both hands had on them scores of epitheliomas of varying sizes and heights. A recurrence showed in the stump of the amputated finger with an enlarged epitrochlea lymph mass of half the size of an egg, and in the axilla and subclavian region of that side, a conglomerate mass resembling a large clenched fist. Hopeless as it all seemed, he wished me to excise the lymph and other related scar growth, and apply radium as well as possible, at least for experiment. This I reluctantly did much to his delight. During the convalescence he asked me to try what radium would do on the cutaneous epitheliomas which were, as he said, just the way the original trouble started.

I used one strong specimen of radium from my collection, and told him I had no doubt they would all

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

be cured by applying it from half an hour to one hour each. In thirty days every one dried up and fell off, leaving a smooth healthy soft scar beneath. Even one with a half-inch base and three-quarters of an inch in height — cornified on top and very vascular at the base — was absolutely cured in the same time. The effect of buried radium in the operated field of the large axillary cancerous masses was, as I expected, of no value. The patient lived some months and succumbed to the cancer saturation, though no recurrence of the epithelial growths took place.

Many men are living to-day, who have served their profession and the public nobly, who have hanging over them this fate, which has befallen many whom we all know. These may all share the "exhilarating sentiment of hope" through radium.

It is to these that the cases now described will appeal. Two or three examples will suffice.

One physician, illustrating a type of severe injury of the hands of one of the pioneers and foremost authorities in Roentgen-ray work, came to me two years since with both hands covered with patches of thick epitheliomas and crusted skin, cracked and sore, compelling him to use gloves and cerates for even decent comfort. During several years he had forestalled the dangerous second stage by having surgeons excise and skin graft several parts. Others had cauterized and destroyed certain considerable areas by nitric acid, with fairly smooth scars; several times he had had carbon dioxid freezing to destroy and heal: and other agents as numerous as the surgeons to whom he applied. At last he was disheartened and refused to suffer longer the pain of these treatments, the worst of which he thought was freezing. Two years ago he consulted me and I loaned him one specimen of radium to use, indicating the number of minutes for each of twenty or thirty places. The result was better, he said, than by any other surgical method he knew. A second use of it on numerous other parts so far restored his hands that he decided to marry, which the condition and prospect of his hands had wholly prevented him from considering. During the past two years he has four times borrowed my specimen to use on a few lingering places, and writes me as follows:

> The great advantage of the radium treatment, in my judgment, lies, first, in the fact that it may be applied to many situations which are not accessible to freezing, and, second, in its relative freedom from pain.
>
> I have had about three hundred and fifty or four hundred areas treated by radium, and about sixty areas treated by freezing. Many of these radium areas could not have been reached successfully by freezing, and because of the relative freedom from pain, it has been possible to obtain truly wonderful results with radium, with far less discomfort than was experienced with the smaller amount of freezing treatments.
>
> These radium areas included both ulcers and keratoses, most of which could have been classed as precancerous.
>
> I feel that the success of the radium treatment has really changed my whole life.

Ten cases of physicians whose hands, diseased by the Roentgen ray, I have treated have all shown the happy results of radium treatment.

One enthusiastic patient over 70 years of age had the usual cure of part of his hand by radium two years after I had excised and skin grafted another area, the microscope having shown typical basal-cell cancer. A third area was then treated by radium at a later date. After the fourth week, he asked me to excise and skin graft the thick scar, as it was on his mind and worried him. It gave a good opportunity for careful microscopic demonstration that no trace of disease was left, but only the subsiding radium inflammation which would have gone in another fortnight. He remains perfectly well.

In another surgeon's hands the thick crusted and ulcerated knuckle of his disabled finger has healed after the use of radium, with a soft flexible scar.

Other surgeons, who were much handicapped in their work, report the same happy termination of their anxiety and pain.

It seems almost a paradox of radiology that the accepted use of a heavy gamma radiation from a Roentgen tube will cause a diseased condition of the skin, which a similar radiation from a tube of radium will cure. This becomes intelligible when we know that the output of the Roentgen-ray tube is almost wholly composed of hard, penetrating, irritating gamma rays. The radium discharges the beta ray in great quantity, as well as the gamma ray. It is the beta ray that has been proved beyond question to be the efficient curative power, and it is only the secondary betas generated by the gamma when striking any resisting substance, that give it its value in the Roentgen-ray tube work. Hence, we can understand that a surface lesion of morbid cell growth, be it hyperkeratosis or basal cell, is happily cured by the large output of soft beta radiation of radium.

It is not possible that, if we could gage the output of the Roentgen-ray tube in power enough to generate the curative beta rays by impact on the superficial disease, we could certainly cure it, as well as by radium, but in so doing we would have to discharge energy enough of the hard gamma variety to be highly injurious to the deeper tissue of the vessels, muscle and skeleton.

It is most fortunate, therefore, that nature has provided just the agent which can correct the superficial evil which the Roentgen tube had caused by prolonged irritation of surface impact.

Regarding the amount of radiant energy needed in such cases, it may be said that, according to what type of radium application is used, the effect which would cure ordinary papillomas or basal cell epithelioma, is competent to cure in equal time, the Roentgen-ray growths. The sequel of an application consists in ten days' latent action, ten days' activity and ten days' quiescence, followed by desquamation of the crusts from a soft healed surface. The results seem permanent. The skin has rarely been found to be irreparably damaged by disease, and afterward, the cicatrix is thin and flexible.

To sum up, I may say that no cases have presented themselves to me of chronic dermal Roentgen-ray disease in the early stage of thick patches, cracked, ulcerated and painful, or of epithelial growths of basal-cell type on the back of the left hand of those who have in past years used that hand to test the tubes, which have not yielded to radium therapy.

13 West Fiftieth Street.

Tuberculosis Carriers.—Tuberculosis is not spread by tuberculosis patients alone, but also by a great number of apparently healthy people who, bearing bacilli about with them, propagate the same by excretions of all kinds.—A. Calmette-Lille.

USE OF AUTOGENOUS RIB GRAFT IN RECONSTRUCTIVE SKULL SURGERY

ROSCOE R. KAHLE, Ph.B., M.D.
Surgeon to Grant Hospital; Instructor in Surgery, Ohio State University, College of Medicine
COLUMBUS, OHIO

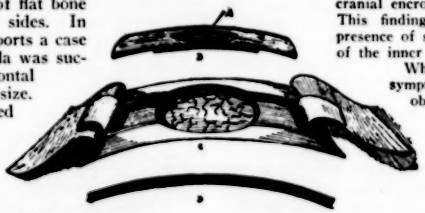
While I shall briefly review the history of reparative skull surgery in this paper, my chief object is to emphasize the fact that nature, though not lavish in the bestowal of osteogenetic properties to the bones of the skull, has yet sufficiently endowed them with reparative power to establish complete restoration when encouraged by the favorable application of a suitable transplant. If our aim in reparative skull surgery is anatomic restoration, then there can be no choice of material; it must be living bone.

In a careful search of the literature (English, French and German) we find numerous references to autoplastic and heteroplastic operations, but very few on autogenous transplantation.

Seydel was probably the first to obtain osseous closure by implantation of bone taken from another part of the body. Tibial chips with periosteum intact were utilized as a transplant.

Röpke first suggested the desirability of selecting for a transplant, a section of flat bone having periosteum on both sides. In accordance therewith, he reports a case in which a section of scapula was successfully grafted into a frontal defect 3.5 by 5 cm. in size.

Rhodes recently reported four cases of tibial graft to the cranium in which the tibial sections, cut larger than the defects, were placed over the gaps and anchored in place by chromic-gut sutures. These cases are particularly interesting because the position of the transplants does not conform to orthodox teaching, which requires end-to-end approximation.



Method of using rib graft in skull surgery: *A*, opening to provide for immediate nourishment; *B*, rib section framed to fit opening in skull shown in *C*; *C*, skull prepared to fit rib graft; *D*, cross-section showing beveled lap-joints.

Morris reports a case of total tibial graft to the left frontal bone, but states that sixteen days subsequent to his dismissal from the hospital his patient returned with a transverse fracture of the tibia at the site from which the bone graft had been removed. He had learned of four similar cases very recently and believed it important to give warning of the danger involved in the removal of a tibial segment of any considerable size.

W. J. Means cites a case in his service in which a parietal graft, including both tables, was transplanted into a frontal defect involving the outer table only.

The foregoing summary, though brief, is, I believe, representative of the autogenous procedures for skull repair hitherto reported in medical literature.

I shall now recite the case history of a skull injury and describe the operation for its repair.

REPORT OF CASE

Mr. C., aged 23, robust, married, with good family history, on Sept. 6, 1913, while walking under a derrick, was struck by a falling object which inflicted a scalp wound and fractured the left parietal bone. An infection occurred which caused bone necrosis and prevented healing.

On Oct. 28, 1913, the patient was referred to me by Dr. H. R. Neeland of Hebron, who explained that when he first saw the patient, several days after the accident, he found an accumulation of pus under the scalp at the site of the original injury. An incision was made and drainage established but the wound would not heal. On the following day, October 29, the patient was removed to Grant Hospital for operation. A scalp flap was elevated and an area of necrosed bone, involving both tables of the left parietal near the lambda, was thoroughly curetted. An autogenous vaccine, prepared at this time, was administered at intervals and probably assisted in the healing process which was complete at the end of four weeks. The patient now had a skull defect 1 inch by 1½ inch, obtrusively situated, but he did not wish to undergo a second operation for its repair. He had arranged, accordingly, to wear an aluminum shield in his cap for protection while at work. His return to former employment was prevented, however, by the appearance of a continuous and violent headache, associated with a perverted disposition so extreme that his family feared the onset of permanent mental derangement. Some measure for relief was, therefore, eagerly sought.

Careful physical and laboratory examinations revealed no other cause for the patient's symptoms than his former head injury. The cranial opening was filled in with tough fibrous tissue which did not pulsate. The headache, ever present, was aggravated by pressure on the scar. There was no choked disk. Roentgenoscopy verified the supposition of intracranial encroachment at the site of injury. This finding was made possible by the presence of some small detached fragments of the inner table.

When our patient realized that symptomatic relief could only be obtained by additional surgery, he was very anxious that cranial restoration might also follow in its wake. The suggestion of a metal plate provoked revolt because the only person he knew of, wearing a plate in his skull, resided in an insane asylum.

In viewing the skeleton, it occurred to me that the most favorable bone it had to offer for skull graft was the rib. Here was a bone curved like the skull, with two plates and cancellous bone between, surrounded by periosteum, as thick as the vertex, accessible and easy to frame up. Through the courtesy of Dr. Edward C. Buck, professor of anatomy at Ohio State University, I was provided with a liberal supply of material for dissection and experimentation. I found that it is usually practical to chisel between and separate the outer and inner tables. This may be done without danger of injury to the inner table. After chiseling up several skulls, I could secure unbroken segments of outer table 2 or 3 inches in length but not much wider than three-quarter inch. In my hands a motor-driven saw for accurate skull work is unsatisfactory. With a suitable hand-driven instrument there is greater precision and about equal speed. An adjustable guard prevents sawing too deeply. The osteogenetic properties of the diploe suggested the possible advantage in technic of a liberal surface contact between the diploe and the transplant. This was best secured by a modification of the old-fashioned lap joint.

Operation.—The patient reentered the hospital, Feb. 23, 1914. The entire scalp was carefully shaved with a sterile razor. Ether and iodin were applied, followed by a sterile gauze cap which was not removed until the patient reached the operating room the following morning. Iodin was again applied to the scalp. A strip of discarded inner tubing was used as a tourniquet and answered the purpose beautifully.

A large U-shaped scalp flap was lifted and the dense fibrous scar, filling the defect, carefully dissected away. The rough edges of the skull, which dipped in places, were evened and freshened. Periosteal flaps as large as the sections of the outer table to be removed were turned back at both ends of the skull gap. A small hand-driven saw, properly set and filed to cut well, was used to outline the sections of the outer table which were chiseled away on the bevel to form the skull side of the lap joints. The skull was now ready to receive the rib.

A section of the right sixth rib with periosteum intact and of sufficient length was now removed, and with calipers, saw and chisel was readily framed to fit the skull. To provide for immediate nourishment, an elliptical opening was made through the outer plate of the transplant. It was pressed to position, the periosteal skull flaps were replaced over the ends, the scalp flap dropped and reunited with silkworm-gut sutures. There were no deep sutures of any kind. The gauze dressing was fixed in position by a wide strip of adhesive to prevent any possible dislodgment of the transplant. Healing was by first intention throughout and convalescence was uneventful. The patient left the hospital at the end of four weeks, returning at intervals for roentgenoscopy.

In a brief report of this case before the surgical section of the state society a year ago, I said that I was anxious to see what might happen to the transplanted section of rib; whether or not it would remain rib or be replaced by fibrous tissue, or whether it would act as scaffolding for the regeneration of new bone; and should new bone be formed, would it resemble in any marked degree its parental bone, the parietal? Since the rib was somewhat narrower than the skull defect, we also wondered if the process of repair, once begun, would bridge across the marginal space on either side.

Careful study of an excellent series of roentgenograms for which I am indebted to Dr. C. F. Bowen, shows:

1. The rib transplanted to the skull acts as a scaffold for the regeneration of new bone.

2. The newly formed bone patch closely resembles the original skull, the inner table appearing identical, the remainder being slightly reduced in thickness and density.

3. A marginal gap of one-eighth to one-quarter inch is filled in by the extension of the skull to meet the rib.

4. The inner plate of rib, with periosteum intact, sharply limits the deposit of new bone.

5. There is total restoration of cranial continuity, the process of repair being complete at the end of six months.

In conclusion, I believe that the method of skull repair which I have described may legitimately be accorded the following points of vantage:

1. The curved rib, as above mentioned, possesses unique anatomic adaptability.

2. A beveled lap-joint provides a large area of end to end approximation, confers stability, and renders unnecessary the use of buried sutures.

3. The under surface of rib with its periosteum is admirably adapted for brain contact.

4. A wide defect could be closed by the use of twin transplants.

5. In the case reported, after a period of fourteen months, symptomatic relief and cranial restoration are complete.

Dr. L. L. Bigelow has very recently closed a parietal defect, 1 by 3 inches in size, by the method of rib graft which I have described. He informs me that his patient is convalescing satisfactorily, although it is too early for him to determine the fate of the transplant.

350 East State Street.

ANTEVERSION OF THE FEMORAL NECK IN THE NORMAL FEMUR

AND ITS RELATION TO CONGENITAL DISLOCATION OF THE HIP

HERBERT A. DURHAM, M.D.
Assistant Surgeon, New York Orthopaedic Dispensary and Hospital
NEW YORK

In connection with some work which has been done during the past four years at the New York Orthopaedic Hospital, on anteversion of the femoral neck, when found in connection with congenital dislocation of the hip, I recently made a study of 200 normal femora at the anatomic museum of the College of Physicians and Surgeons, with the view of determining the frequency and extent of this condition in the normal femur, and beyond what degree it might be considered an abnormality, sufficient to justify a corrective osteotomy when found complicating congenital dislocation.

The method employed in determining the angle of deformity was as follows:

A line was drawn through the center of the upper surface of the head and neck of the femur parallel to its long axis. The femur was then laid on a plain surface, resting on the posterior eminences of both condyles and the greater or lesser trochanter, whichever might be most prominent in any given specimen. The angle thus formed by the line drawn through the long axis of the femoral neck, with the plain surface, was then measured by a goniometer.

In the total number of specimens examined, the angle of anteversion varied from nothing to 35 degrees. In eighteen of the 200 specimens, there was no anteversion present. In eighty, anteversion was present from 2 to 10 degrees. In seventy-five, anteversion was present from 10 to 20 degrees. In fourteen, anteversion was present from 20 to 25 degrees. In nine specimens, anteversion was present from 25 to 28 degrees. Only two of the total 200 had more than 30 degrees' anteversion, one having 32 and the other 35 degrees.

The average taken from the individual figures of the 200 specimens was found to be 11.9, or approximately 12 degrees. It will be seen from these figures that anteversion of the femoral neck is absent entirely in only about 9 per cent. of normal individuals.

That anteversion is present in a considerable percentage of cases of congenital dislocation of the hip is a long-recognized fact. But it is very doubtful if its presence within the limits of the foregoing figures would interfere materially with the maintenance of reduction in the average case. There are, however, a large percentage of cases in which anteversion exists far beyond the normal range.

We often see children with dislocated hips who have 45 degrees of anterior torsion of the neck of the dislocated femur, and less frequently we see patients with anterior torsion to 75, and even 90 degrees. This condition is largely if not entirely

responsible for the large number of so-called anterior transpositions obtained by attempted reduction.

It is difficult to give any limit beyond which osteotomy for the correction of anteversion is justifiable, as that will depend largely on the condition of the femoral head and acetabulum and whether or not we are content to consider anterior transposition a satisfactory result. Since only a very small proportion (1 per cent.) of normal cases show anteversion beyond 30 degrees, it seems fair to consider any amount in excess of 30 degrees a potent obstacle in the way of maintaining reduction.

When this condition is found to an abnormal degree in cases with deficiency of the acetabular brim, associated with a short femoral neck, even though the femoral head be fairly well formed, osteotomy for its correction would seem to be a justifiable procedure, if it has been impossible to maintain reduction after a fair trial.

50 Central Park West.

THE VACCINE TREATMENT OF RINGWORM OF THE SCALP*

ALBERT STRICKLER, M.D.

Assistant Dermatologist, Philadelphia General and Samaritan Hospitals; Instructor in Dermatology, Philadelphia Polyclinic and College for Graduates in Medicine

PHILADELPHIA

The vaccine treatment of ringworm of the scalp rests on the fundamental fact that, in the blood of children suffering from this affection, there is a specific antibody which produces a positive complement-fixation test and gives a positive skin reaction.

Dr. Kolmer and I found 78 per cent. positive fixation tests in children suffering from tinea tonsurans. This work was done with controls, not only against various dermatologic affections, but also against syphilis, all of which controls were negative. In performing this reaction, the ringworm fungus was used as the antigen. We inject 0.05 c.c. of a suspension of dead ringworm fungus in salt solution, which has been briefly centrifuged at low speed, so that it is of about the same density as luetin. When we inject it into the superficial skin layer of the arm of children suffering from tinea tonsurans, we obtain reactions in the vast majority of patients with ringworm, and negative results in our controls. In only one instance did we obtain a slight positive result in a case of severe staphylococcic infection. The reaction occurs about twenty-four hours after injection, and a positive result consists in a central nodular area of infiltration and a surrounding reddened areola.

Having demonstrated these two fundamental phenomena, namely, the positive complement-fixation test and the occurrence of a skin reaction in ringworm of the scalp, it is felt that we have evidence beyond peradventure of a doubt that the ringworm fungus elaborates a specific substance which gets into the circulating blood of patients suffering from tinea tonsurans. The fact that there is a specific substance in the serum of these patients indicates the rationale and value of a vaccine treatment of ringworm of the scalp.

As is well known, the hair is but a specialized epidermal structure, which is situated within a hair follicle. The hair follicle is a cylindric tube which dips down into the true skin. Each hair papilla is supplied with a capillary loop, derived from the blood plexus of the cutis vera, and it is from this source that the hair receives its nourishment. There is no blood vessel which supplies the hair itself directly.

In the beginning of ringworm of the scalp, the fungus is deposited on the skin, and it grows under the surface of the horny layer. When the fungus in the stratum corneum encounters the mouth of a hair follicle, the mycelia grow into it, increase in size and form a mass around the hair. This mass grows downward toward the bulb of the hair. Some mycelial threads penetrate the hair, while others lie outside of it in the root sheaths.

It is to be seen from the foregoing that in tinea tonsurans, the fungus attacks an epidermal structure which has no blood supply of its own, its nutrition being derived from the capillary loops situated beneath the hair follicles. Still, sufficient ringworm toxin reaches the circulating blood to set up a reaction in the blood serum of patients suffering from ringworm of the scalp, and gives rise to a reagin which is capable of producing a positive complement fixation and also a positive skin test.

The first effort to produce a vaccine of ringworm was that of Plato, who in 1902 described his trichophytins. A culture of the infected hair of a patient with deep nodular ringworm of the beard was grown on a culture medium of 3 per cent. maltose bouillon for from two to three months at room temperature. The growth was ground up as much as possible with a glass rod or strong platinum wire, and filtered through sterilized filter paper, and 25 per cent. phenol (carbolic acid) added.

Von Truffi filtered his culture through Chamberland candles and boiled the filtrate. The trychophytins were found to have practically no influence on the lesions of tinea tonsurans of the ordinary type. Their chief value has been as a method of diagnosis by means of a skin reaction, in some types of ringworm.

In our first effort to make a vaccine from tinea tonsurans, suspicious hairs were obtained from the scalps of three patients. These hairs were soaked in absolute alcohol from fifteen to twenty-five minutes, and then immersed in sterile salt solution and transplanted by sterilized forceps to "French proof agar" medium contained in Erlenmeyer flasks. All the steps in this procedure were carried out under usual laboratory technic. The cotton stoppers of the flasks were paraffined, and the flasks were placed on top of the incubator and allowed to grow for twenty-four days. At the end of this period, in our first efforts, the growth was removed by a sterilized platinum spade, care being taken to remove the growth with as little of the culture medium as possible. The growth was placed in a sterile mortar and rubbed up with a definite quantity of salt solution. The process of trituration was continued for about three quarters of an hour, but the growth at that time was but slightly broken up. The suspension was then placed in a sterilized flask containing sterile glass beads and placed in a shaking machine for three hours, with but little impression on the growth. This suspension was then filtered through sterilized filter paper in order to get rid of the large masses; and when the filtrate was

* Read before the Second Annual Session of the American Association of Immunologists at a meeting held in Washington, May 10, 1915.

examined microscopically, only a few spores could be seen in some fields, and in others nothing at all could be seen. It was therefore concluded that it would be useless to experiment with a vaccine of such a character.

It was then suggested that crystals of sodium chlorid, chemically pure, be used to rub up the growth of the cultures, and much to our surprise, the growth, after being triturated from ten to fifteen minutes, was rubbed up so finely as to leave but a few small particles, thus eliminating the necessity of filtering the solution. To this, enough sterile distilled water was added to make normal saline solution.

It is felt that the success obtained by this method of treatment depended on the incorporation of the entire fungus growth in the vaccine; the failure of the tricophytins of Plato was probably due to the fact that the culture suspension was subjected to filtration. Too much stress cannot be laid on this point of difference, and too much emphasis cannot be placed on the necessity of thoroughly rubbing up the ringworm growth.

From the growth on an ordinary Erlenmeyer flask, about 500 c.c. of vaccine was made up. To this from 8 to 10 c.c. of chloroform was added to kill the growth, and the vaccine heated for one hour at 60 C.; the use of the chloroform was latterly discontinued.

Fig. 1.—E. W. (Case 9) before treatment.

Controls for living fungi were made on French proof agar, and for pyogenic organisms on plain agar. The vaccine was preserved by the addition of sufficient phenol to bring it up to 0.25 per cent. It was then tubed in sterile vials, and was ready for use. We have made a sensitized ringworm vaccine, using the serum of a rabbit immunized against ringworm, but we concluded that it was inferior to the ordinary vaccine, its disadvantage probably being in the second sterilization made necessary by this technic.

The vaccine may be employed in doses of from 0.5 up to 4 c.c. It has been found of no value to employ so large a dose as the latter, the usual dose varying between 0.5 and 2 c.c. The injections were at first given at intervals of three days, but after a more prolonged experience, it was deemed advisable to give them every five or six days. The region between the scapulae, where there is considerable loose tissue, and the buttock were the areas chosen for injection, preference being given to the former. About thirty-six hours after injection, but only after the patient has had six or seven injections, an infiltrated area develops at times at the point of injection. The infiltration may be made to disappear by discontinuing treatment and painting the area with tincture of iodin and applying a dressing of ichthyol ointment once daily.

In no instances were there any constitutional reactions following the injection.

The number of injections varied from seven in some instances to twenty-two in others. No case was considered cured until the hair from the area treated and the vicinity had been examined microscopically and found to be devoid of fungus. In a majority of instances, the hair was also submitted to Dr. J. F. Schamberg and to Dr. Kolmer, who subsequently examined it and confirmed the absence of the ringworm parasite.

The vaccine may affect the infected hair in one of two ways: First, each hair may be the seat of a follicular abscess and thus lead to the extrusion of the hair, or second, there may develop a crust over an area, as result of an inflammation beneath, and with the falling off of the crust the infected hair also go with it. While the stock vaccine suffices in the vast majority of instances, in a very limited number, an autogenous vaccine becomes necessary.

In treating a case of ringworm of the scalp, we adopt the following procedure: Hair infected with the fungus is planted on French proof agar, according to the technic previously described, both for the purpose of determining the type of infection and for the purpose of treatment.

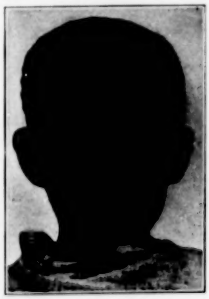


Fig. 2.—E. W. (Case 9) after treatment.

We then inject the patient with our stock vaccine, once every five days, giving five injections, starting the first injection with 0.5 c.c. and giving 1 c.c. for the second and third doses and 2 c.c. for the fourth and fifth injections. We then advise the use of local treatment in conjunction with the vaccine. We suggest oil of cade and olive oil, equal parts, to be used twice a day for a period of two weeks, meanwhile giving 1.5 c.c. of the vaccine every six days. This local treatment is then to be followed by the use of an ointment, say, 20 grains of precipitated sulphur and 1 ounce of petrolatum, which may be applied once a day for a period of two weeks. Treatment by vaccine extending over a period of between three and four months usually suffices for a cure. If, after seven or eight injections, no improvement is noticed, the stock vaccine should be discontinued and an autogenous one employed.

Up to date, at the Philadelphia General Hospital we have treated twenty patients with ringworm of the scalp of various grades of severity, with the following results:

Cured, 14.
Markedly improved, and still under treatment, 1.
Improved, and still under treatment, 1.
Improved, but left before treatment could be completely carried out, 3.
Died from measles with an intercurrent pneumonia, 1.

All of these patients were treated with vaccine only, a weak ointment being used to stimulate hair growth in three cases, but only after repeated examinations proved the hair to be devoid of fungus. Following are the histories of patients treated with this vaccine:

CASE 1.—S. S., colored boy, aged 5 years, admitted to the Philadelphia Hospital, Jan. 16, 1914, received infection four months before. The condition was generalized over the entire scalp. Infection was due to the microsporon. Treatment began April 26, 1914. No other treatment was applied to the scalp. He received vaccine injections as follows: April 26, 0.5 c.c.; April 30, 1 c.c.; May 5, 1 c.c.; May 8, 1 c.c.; May 11, 1 c.c.; May 14, 1 c.c.; May 18, 1 c.c.; at this time marked improvement was noticed. May 21, 1 c.c.; May 24, ⅔ c.c. Patient was kept under observation for six months and then discharged, cured.

CASE 2.—A. M., girl, aged 9 years, white, one of three children, received infection from her brother. She had but one patch about the size of a palm and one very small patch. The microsporon was found to be the infecting fungus. Dates and doses of vaccine administrations were as follows: May 24, 1 c.c.; May 27, 1 c.c.; May 30, 1 c.c.; June 2, 1 c.c.; June 7, 1 c.c.; marked improvement resulted. June 10, 1 c.c.; June 13, 1 c.c.; June 17, 1 c.c.; the patient was cured. She remained in the hospital about two weeks, and was then taken home by parents, cured.

CASE 3.—J. M., boy, aged 6 years, white, was admitted to the Philadelphia Hospital, Feb. 26, 1913. No history could be obtained as to duration of affection previous to admission. He had all sorts of local treatment without avail. April 26, vaccine treatment was instituted and all local treatment discontinued. Examination of hair showed microsporon infection. April 26, 0.5 c.c.; April 30, 1 c.c.; May 5, 1.5 c.c.; May 8, 1 c.c. There was no improvement, and hair was taken for making autogenous vaccine. May 11, 1 c.c.; May 18, 1 c.c.; May 21, 1 c.c.; May 24, 1.5 c.c. Some improvement was noticed. May 27, 2.5 c.c. July 10, new vaccine was given, each cubic centimeter of which contained ⅓ c.c. of autogenous vaccine, the remaining two thirds being stock. July 10, 1 c.c.; July 14, 1.5 c.c.; July 18, 1.5 c.c.; July 22, 1.5 c.c.; July 26, 1.5 c.c.; July 30, 1.5 c.c.; August 4, 1.5 c.c.; August 8, 1.5 c.c. The patient was discharged, cured. Patient received in all seventeen injections. The hair of this patient was examined on three different occasions and reported negative. At the last examination, Drs. Schamberg and Kolmer also examined the hair, and pronounced it free of fungus. This patient had an associated seborrhea sicca, which yielded promptly to a weak sulphur ointment.

Fig. 3.—H. B. (Case 12) before treatment.

Fig. 4.—H. B. (Case 12) after treatment.

CASE 4.—B. L., girl, aged 11 years, white, had had the disease one and a half years. In the latter part of December, 1913, she was given Roentgen-ray treatment by Dr. G. E. Pfahler, which failed to cure. August 12, 1914, she was admitted to Blockley. Examination of hair showed microsporon infection. Patch was limited to vertex of scalp. August 19, 1 c.c. sensitized vaccine. August 23, 1 c.c. sensitized vaccine. September 8, 1 c.c.; September 21, 1 c.c.; September 27, 1 c.c.; October 3, 1 c.c. Discharged cured after examination of hair proved absence of fungus.

CASE 5.—W. H., colored boy, aged 10 years, was admitted to Blockley, Sept. 10, 1914. Diagnosis, tinea kerion. Mother says that child caught the disease in school. Had it since Christmas, 1913. Child received ten injections, from September 13 to October 17, inclusive. Discharged in latter part of November, 1914, cured.

CASE 6.—J. S., boy, aged 7 years, white, had infection eight months previous to admission to Blockley, which was Aug. 18, 1914. Sister stated that the condition started on the scalp as a small scaly area and spread rapidly, involving other areas. Parents consulted the skin clinics in various hospitals without noticing any improvement in the boy's scalp. At the Pennsylvania Hospital the scalp was treated by Roentgen ray, but no cure was obtained; in short, the infection resisted all treatment. The microsporon was found in the hair. The patient received two injections of sensitized vaccine and eleven injections of ordinary ringworm vaccine. The treatment terminated November 23. Child was kept under observation for one month and was discharged cured, after an examination of the hair failed to disclose the presence of the fungus.

CASE 7.—C. S., boy, aged 4, white, brother of Patient 6, admitted to Philadelphia Hospital Aug. 18, 1914, received two injections of sensitized vaccine and thirteen injections of ordinary vaccine, and was discharged cured at the same time as his brother.

CASE 8.—C. L., colored boy, aged 5, was admitted to Blockley, Dec. 15, 1913, in service of Dr. Hartzell. The exact duration of the ringworm infection could not be ascertained. The infection invaded the entire scalp. Treatment with vaccine was begun April 26, 1914. The boy was given thirteen injections and was pronounced cured, but as is our custom, he was kept under observation for some time. About one month after cessation of treatment, in playing with the ringworm children, he developed a reinfection, and after twelve more injections the hair became normal again. After being kept under observation for six weeks, he was discharged cured, four different examinations of the hair having failed to show any fungus.

CASE 9.—E. W., colored boy, aged 7, was admitted to Blockley April 29, 1914. Duration previous to admission was unknown. Infection of the scalp was general. The type of fungus was the microsporon. The patient received fourteen injections with marked improvement. He then developed the peculiarity of forming abscesses at the seat of injection, if he was injected more frequently than once a month. He received five injections scattered over a period of several months. His improvement continued, until now his scalp is absolutely normal, repeated examinations of his hair having failed to show the ringworm fungus.

CASE 10.—C. L., colored boy, aged 6, was admitted to Blockley Aug. 2, 1914. Infection antedated his admission by six months. He had a large patch on the occipital area of his scalp about the size of two silver dollars, and several small scattered patches over his scalp. His infection was of the microsporon type. He received fifteen injections in all, and after being kept under observation for one month, and after repeated examinations of his hair failed to show the ringworm fungus, he was discharged, cured.

CASE 11.—E. C., boy, aged 5, white, was admitted to the Philadelphia General Hospital Sept. 1, 1914. No previous history was obtainable. He had a microsporon infection which involved the greater part of the scalp. He received in all eighteen injections, and after three examinations of his hair, all of which proved negative as to the presence of the ringworm fungus, he was discharged, cured.

CASE 12.—H. B., boy, aged 7, white, was admitted to the Philadelphia General Hospital Nov. 13, 1914. His infection antedated his admission by three months. He had a microsporon infection which involved a considerable part of the front aspect of the scalp. He received ten injections. He was kept under observation for five weeks, during which time

his hair was examined four times and each time failed to disclose the presence of the ringworm fungus.

CASE 13.—J. F., boy, aged 9, white, was admitted to the Philadelphia General Hospital Sept. 9, 1914. Infection antedated his admission by six months. An examination of his scalp disclosed the presence of tinea kerion. He received six injections and was discharged cured after the usual time of observation and three negative hair examinations.

CASE 14.—A. H., boy, aged 7, white, admitted to Blockley March 7, 1915, stated that he had the infection a long time previous to admission. Examination showed four patches, each the size of a quarter dollar, scattered over the scalp. He received eight injections, and the patches are now free of fungus, although the hair has not at present all grown in.

CONCLUSIONS

From an experience with this method of treatment extending over one year, I may conclude that tinea tonsurans is curable with vaccines beyond peradventure of a doubt. Although my record of cases is still small, I firmly believe that the vast majority of patients suffering from ringworm of the scalp can be cured by this method alone.

As Allen has aptly said, in addition to the vaccines, sufficient blood supply containing antitoxic material must reach the area of infection before we have what are considered ideal conditions for the success of this method of treatment. It is felt, therefore, that in recommending some form of local treatment after sufficient vaccine had been administered to arouse the antitoxic elements of the blood, so as to antagonize the toxin of the ringworm fungus, we establish as near as possible an ideal condition, although the results quoted in this paper were obtained by vaccines only, without the aid of local therapy, the object being to give this mode of treatment a crucial test before recommending it to the profession.

It is therefore to be seen that we have in the vaccine treatment of ringworm of the scalp a safe and efficient method of treatment, one that can be carried out at home, that is devoid of danger and that can accomplish a cure in a comparatively short space of time. The Roentgen-ray method, while efficient, can be carried out only by an expert, requires expensive apparatus, and may lead to permanent alopecia, which, in the case of a girl, would be a most distressing disfigurement. From my experiences, the Roentgen ray possesses no advantages over the vaccine method of treatment.

4037 Girard Avenue.

GASTROJEJUNAL ULCERS

THEIR ROENTGENOLOGIC AND SURGICAL ASPECTS *

RUSSELL D. CARMAN, M.D.
AND
DONALD C. BALFOUR, M.D.
ROCHESTER, MINN.

In any case in which gastro-enterostomy has been performed for symptoms due to a definite demonstrable lesion and has been followed by comfort for a varying period, and then by recurrence of certain or all the symptoms in greater or less degree, to determine the cause of the recurrence often occasions considerable perplexity. Without discussing the various possible causes, we wish to refer to the fact that the occasional disappointing result is due to the development of another ulcer in the vicinity of the gastroenterostomy. These ulcers have been variously described as gastrojejunal and jejunal ulcers, and it is quite probable that cases of jejunal ulcer have been reported which were essentially gastrojejunal, and vice versa. Thus in reviewing the literature one is confronted with considerable difficulty in selecting cases of undoubted gastrojejunal ulcer.

Paterson[1] was one of the first to draw attention to these ulcers, and his comprehensive article refers to fifty-one other cases collected from the literature up to that time, fourteen of which were apparently true gastrojejunal ulcers. Other cases have been reported by W. J. Mayo,[2] Moynihan and Tatlow,[3] Mayo Robson[4] and Soresi.[5] From the records of our clinic we have been able to collect thirteen cases not hitherto reported. The salient facts of these are shown in Tables 1, 2 and 3.

A study of this group of thirteen cases does not enable us to state any symptoms or group of symptoms, or any physical findings which will be actually

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

1. Paterson, H. J.: Jejunal and Gastrojejunal Ulcer Following Gastrojejunostomy, Ann. Surg., 1909, l, 367.
2. Mayo, W. J.: Gastrojejunal Ulcers (Pseudojejunal Ulcers), Surg., Gynec. and Obst., 1910, x, 227.
3. Moynihan, B. G. A., and Tatlow, E. T.: A Case of Transgastric Excision for Gastrojejunal Ulcer, Lancet, London, 1914, i, 739.
4. Robson, Mayo: Trans. Roy. Med. Chir. Soc., 1904, lxxxvii, 339.
5. Soresi, A. L.: Secondary Ulcers of the Stomach and Jejunum, Ann. Surg., 1915, lxi, 328.

TABLE 1.—CLINICAL DATA PRIOR TO SECOND OPERATION

Case Number	Period Between First and Second Operations			Period Free From Symptoms	Onset of Symptoms	Relation of Pain to Food	Location of Pain	Relief of Pain		Vomiting	Character of Vomitus	Food Retention	Tumor
	Yr.	Mo.	Day					Food	Soda				
12869	4	10	11	3 years	Gradual, daily past 6 months	Irregular	Epig.	0	0	+	Bitter slime	0	0
69645		8	14	3 months	Gradual	?	?	0	+	0	0	+	0
79384		10	13	6 months complete	Sudden and severe	Increased by food	Left lower abdomen	0	0	+++	Sour, bitter	+	0
101545	16			?	Weekly for years, constant 1 year	?	Right iliac fossa	0	0	++	Retained food	+	+
81306		11	23	1 month	Gradual	0	Epig.	0	?	0	0	0	0
115553*	8	2	27	1 year	Gradual	Increased by solid food	Epig., lower left abd.	0	0	++	Food remnants	+++	At second operation +
96667	1	1		3 months	Gradual	After meals	Epig.	0	+	0	0	++	0
83614	1	5	5	2 months	Gradual	3 hours after meals	To right of and below umb.	+	0	0	0	0	+
98939		10	17	3 months	Gradual	Soon p. c.	Left of umb.	+	+	0	0	0	0
50276	3	3		1 year	Intermittent, spring and fall	10 to 12 p. m.	Epig.	+	+	+	Sour water	+	+
101624	1		21	?	Gradual	3 hours p. c.	?	Milk	0	0	0	0	0
131378		3	21	?	Gradual	3 hours p. c.	Epig.	+	..	+	?	0	0
51115		10	29	3 months	Gradual	2 to 4 hours p. c.	Left hypochond.	+	+	+	Sour	0	At second operation +

* Period between second and third operations, 5 months, 22 days.

pathognomonic of these secondary ulcers. We believe, now, however, that in the patient who is quite relieved by gastro-enterostomy for a period, usually under a year, and then develops symptoms similar to those produced by the original lesion, such symptoms being persistent and unrelieved by any medication, that a

Fig. 1.—Case 69,645. Some irregularity of stoma at *a* with narrowing of jejunum, *b*.

second ulcer has occurred in the region of the anastomosis must be considered a strong possibility. It is most suggestive of a gastrojejunal ulcer if the patient complains of pain, of the same character, relationship to meals and severity, as in the previous trouble, though in a different situation, usually to the left of the midline and below the umbilicus.

Assistance from the Roentgen ray might reasonably be expected in the diagnosis of this condition, although, so far as we are able to learn, gastrojejunal ulcer has received little attention from the roentgenologic point of view. Mathieu and Savignac[6] note that in cases of jejunal ulcer perforating the colon, the Roentgen rays will show direct passage of bismuth into the colon. They state further that the colon may be narrowed by adhesions in the vicinity of the fistula, and the small intestine may be dilated in all or parts of its length. Those conditions are also susceptible of demonstration by roentgenoscopy. Their remarks seem to be based largely on some cases reported by Lion and Moreau,[7] who collected five cases of jejunocolic fistula, including two of their own. One of these was examined with the Roentgen ray by Beclere.

Those of our cases of gastrojejunal ulcer which were examined by the Roentgen ray were all of a non-fistulous type. Admitting that the patients are too few in number for any hard-and-fast conclusions to be sustained, it is perhaps worth while to relate the Roentgen-ray findings and analyze them so far as possible.

6. Mathieu, A., and Savignac, R.: Étude sur les troubles intestinaux consécutifs à la gastroenterostomie, Arch. d. mal. de l'app. digest., 1913, vii, 541.

7. Lion, G., and Moreau, Ch.: La fistule jejunocolique par ulcère peptique du jejunum à la suite de la gastroenterostomie, Rev. de Chir., 1909, xxxix, 873.

Eleven of the patients were subjected to roentgenoscopy with the following results:

Case 1 (12,869).—First operation, Aug. 1, 1908; posterior gastro-enterostomy for perforating duodenal ulcer. Roentgenoscopy, June 6, 1913, showed the gastro-enterostomy moderately patent. A filling defect was noted in the greater curvature, pars media, at the site of the stoma. There was no retention from the six-hour meal. The stomach was of average size and peristalsis was normal. No barium was seen passing pylorus at the time of the examination.

Case 2 (69,645).—First operation, Oct. 10, 1912; posterior gastro-enterostomy for calloused duodenal ulcer. Roentgenoscopy, June 14, 1913, showed the gastro-enterostomy patent but not freely so. Some irregularity of the stoma was not well shown in the plate. The stomach was slightly larger than the average gastro-enterostomized stomach; it was freely mobile, showing normal peristalsis. The duodenal bulb was irregular; the pylorus was free. There was no six-hour retention (Fig. 1).

Case 3 (76,684).—First operation, Dec. 5, 1912; posterior gastro-enterostomy for perforating duodenal ulcer. Roentgenoscopy, Oct. 5, 1913, showed no retention from the six-hour meal. The stomach was larger than the average; its mobility was lessened. There was hyperperistalsis. The gastro-enterostomy was not freely patent. A marked filling defect was present on the greater curvature about the stoma. Barium in considerable quantity could be pressed through pylorus. The bulb was irregular.

Case 4 (81,306).—First operation, March 24, 1913; posterior gastro-enterostomy for large posterior duodenal ulcer with contact ulcer. Roentgenoscopy, Feb. 5, 1914, showed the stomach quite large and mobile. Peristalsis was vigorous. There was no six-hour retention. The gastro-enterostomy was patent.

Case 5 (115,553).—First operation in 1906; anterior gastro-enterostomy for duodenal ulcer and hour-glass stomach. First

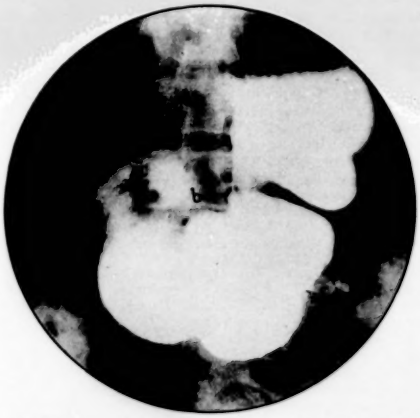


Fig. 2.—Case 115,553. (Prior to second operation.) Slight irregularity of stoma, *a*, which is not freely patent; niche of gastric ulcer on lesser curvature at *b*; hour-glass constriction at *c*.

roentgenoscopy, Sept. 21, 1914, showed retention of one-fourth the six-hour meal and a large hour-glass stomach. A niche appeared on the lesser curvature. There was hyperperistalsis. The pylorus was very patent. The gastro-enterostomy was only moderately patent, with a slight irregularity about the stoma and narrowing of the efferent jejunum (Fig. 2).

A second operation was done Sept. 26, 1914, for gastric and gastrojejunal ulcer, with excision of the gastrojejunal ulcer; posterior gastro-enterostomy.

A second roentgenoscopy, March 11, 1915, showed retention of half the six-hour meal, the residue being between the stoma and the pylorus. Notwithstanding this retention, after filling the stomach the gastro-enterostomy seemed patent.

Fig. 3.—Case 115,553. (Prior to third operation.) Some irregularity of stoma and jejunum at *a*; niche of gastric ulcer on lesser curvature at *b*; hour-glass constriction at *c*.

Some irregularity was noted about the stoma. There was an hour-glass stomach. Hyperperistalsis and a niche on lesser curvature were observed (Fig. 3). A third operation was done March 18, 1915, for gastrojejunal ulcer.

CASE 6 (83,614).—First operation, May 14, 1913; anterior gastro-enterostomy for perforating duodenal ulcer. Roentgenoscopy, Oct. 13, 1914, showed the gastro-enterostomy functionating and marked spasticity of the stomach.

CASE 7 (98,939).—First operation, Feb. 10, 1914; posterior gastro-enterostomy for obstructing duodenal ulcer. Roentgenoscopy, Jan. 16, 1914, showed no retention; a stomach of moderate size with diminished mobility, and a patent gastro-enterostomy. A marked filling defect was noted on greater curvature about the stoma; also an irregularity of the first inch of the jejunum (Fig. 4).

CASE 8 (50,276).—First operation elsewhere in November, 1911; posterior gastro-enterostomy for duodenal ulcer. Roentgenoscopy, Feb. 5, 1915, showed a large stomach with retention of one fourth of the meal after six hours. Peristalsis was active; gastro-enterostomy not freely patent; pylorus free. The plates show some irregularity about the stoma. The duodenum was dilated, the jejunum narrowed (Fig. 5).

CASE 9 (101,624).—First operation, March 9, 1914; posterior gastro-enterostomy for chronic perforating duodenal ulcer. Roentgenoscopy, April 27, 1915, showed no retention, the gastro-enterostomy very high on the stomach, and functionating moderately. The pylorus was quite free, the stomach of medium size and mobile with active peristalsis. There was a slight irregularity of the greater curvature about the stoma. The jejunum was narrowed (Fig. 6).

CASE 10 (96,667).—First operation, Dec. 12, 1913; posterior gastro-enterostomy for perforating duodenal ulcer. Roentgenoscopy, Dec. 6, 1913, showed retention of half the six-hour meal. There was hyperperistalsis. The gastro-enterostomy was not freely patent; the stoma was irregular, the jejunum narrowed, the stomach large, the duodenal bulb irregular. The pylorus was free (Fig. 7).

CASE 11 (131,378).—First operation, elsewhere, Feb. 6, 1915; posterior gastro-enterostomy for reasons not known. Roentgenoscopy, May 24, 1915, showed a small gastro-enterostomized stomach with gastro-enterostomy functionating. There was no six-hour retention.

For convenient comparison, the Roentgen findings are assembled in the accompanying tabulation:

TABLE 2.—ROENTGEN FINDINGS IN ELEVEN CASES OF GASTRO-JEJUNAL ULCER

Roentgen-Ray Findings	Case Number										
	50276	83614	84396	98939	96667	129691	130645	130697	115553	101624	131378
Deformity about stoma	+	..	..	+	+	+	+	+	+	+	..
Exaggerated peristalsis	+	..	+	+	..	..	..	+	+	+	..
Large stomach	+	..	+	+	Mod.	Aver.	+	+	..	..	..
Gastro-enterostomy not freely patent	+	..	..	+	..	Mod.	+	+	+	Mod.	..
Retention from six-hour meal	+	..	..	..	..	..	..	+	+	..	..
Lessened mobility of stomach	..	..	..	+	+	..	..	..	..	..	..
Dilatation of duodenum	+	..	..	..	..	..	..	..	..	..	..
Spasticity of stomach	..	+	..	..	..	..	..	..	..	..	..
Irregularity of jejunum	+	..	..	..	+	..	..	+	+	+	..

Noteworthy is the fact that of the eleven patients examined ten showed abnormalities not customarily seen in the gastro-enterostomized stomach. After gastro-enterostomy the following conditions are found normally:

1. The opaque meal passes freely through the stoma. This is the rule, subject to occasional exceptions, even after the lapse of years.
2. No retention is present in the stomach from the six-hour meal.
3. The duodenum is not dilated.
4. The stomach is usually small.
5. Peristalsis is not overactive.

Fig. 4.—Case 98,939. Deformity about stoma at *a* and first inch of jejunum at *b*.

6. The gastric contour in the vicinity of the stoma is not usually deformed, save for a slight dimpling at that point occasionally.
7. The efferent limb of the jejunum is neither narrowed nor markedly irregular in outline.
8. Extensive adhesions about the stoma simply as a result of operation are uncommon, and the stomach is at least moderately mobile.

9. The stomach is not deformed (unless by the original lesion or its resection) and has no tendency to hour-glass form or spasticity.

Summarizing the phenomena observed in this series, we note:

Deformity of contour about stoma	8 cases
Exaggerated peristalsis	6 cases
Large stomach	5 cases
Gastro-enterostomy not freely patent	5 cases
Retention from six-hour meal	3 cases
Lessened mobility of stomach	2 cases
Irregularity of jejunal contour near stoma	5 cases
Dilatation of duodenum	1 case
Spasticity of stomach	1 case

Fig. 5.—Case 50,376. Large stomach. Irregularity about stoma at *a*; jejunum, *b*, not freely patent, as shown by the small amount of barium passing through it; duodenum, *c*, dilated.

Fig. 6.—Case 101,624. Slight irregularity about stoma at *a*; narrowing of first inch of efferent jejunum, *b*.

These signs may be classified in two groups: (*a*) those indicative of secondary pathology; (*b*) more direct signs pointing to the seat of pathology.

The first group includes retention from the six-hour meal, large size of the stomach, exaggerated peristalsis, lessened mobility of the stomach and spasticity. The first three mentioned, though sometimes resulting from other conditions, are fair indications of obstruction, and of strong significance in the gastro-enterostomized stomach with its presumptively free drainage. Lessened mobility, a feature which is not often accurately determinable, can be attributed to the production of an unusual amount of adhesions. Spasticity of the stomach, which was the sole abnormality noted in one case, simply pointed to an irritable focus, either within or without the stomach, producing spasm reflexly.

Fig. 7.—Case 96,667. Large stomach with deformity of stoma at *a*; narrowing of jejunum at *b*; note hyperperistalsis; peristaltic waves at *c*.

The second group is of more importance in localizing the probable seat of trouble. This group comprises deformity of contour about the stoma, deficient patency of the stoma, local irregularity of the jejunal contour, and dilatation of the duodenum. Deformity about the stoma varied in degree as seen in this series but was sufficiently marked to attract attention in eight of the cases. In five instances the jejunum also showed definite irregularity near the stoma. Impaired functioning of the gastro-enterostomy with diminished discharge of the barium meal through it was found in half the cases examined. In one case considerable dilatation of the third portion of the duodenum was observed, suggestive of obstruction not far beyond.

The question arises: How far can the diagnosis of gastrojejunal ulcer be carried by the Roentgen ray? If this series be a sufficient basis for judgment, it would appear that in nearly all cases there are definite roentgenologic indications of an abnormal condition, and that in many instances there are more or less direct signs pointing to the location of the trouble. The most direct index of gastrojejunal ulcer noted in this series was marked deformity about the stoma. The nature of the ulcer rather precludes any

probability of visualizing its crater as a niche such as is often seen in penetrating gastric ulcer; but in eight of the eleven cases examined an unwonted deformity and irregularity of and about the stoma indicated a pathologic process in that neighborhood. At present the Roentgen ray alone seems unable to go farther than this; however, a correlation of the Roentgen findings with the clinical data should aid materially in deciding whether a gastrojejunal ulcer is probably present or not.

The gross pathologic picture in our own cases and in those reported in the literature is more or less constant. The ulcers we have observed were of considerable size, from 1 to 3 cm. in diameter. They actually involved the anastomosis, with a tendency to spread to greater extent on the jejunal than on the gastric side. Common to all and most striking is an associated marked induration of the entire line of anastomosis with firm adhesions to surrounding structures. This in three of the cases produced a palpable mass, especially prominent in the anterior gastro-enterostomy cases. Subacute perforation has been the rule, and in one case produced a fistula between the stomach and transverse colon.

Of greatest interest, in the findings, has been the discovery of strands of unabsorbed permanent suture material, in six of the thirteen cases (Figs. 8 and 9). This retained suture material may have constituted an important etiologic factor. The condition has been reported by other observers, W. J. Mayo in 1910 reporting retained linen in one of three cases of gastrojejunal ulcers; Moynihan and Tatlow one in 1914; Soresi one in 1915. So far as can be determined, Berg[8] reported the first case of retained suture material following gastro-enterostomy. The patient had had an anterior gastrojejunostomy in 1895 for pyloric stenosis. In 1898 Berg reoperated by the Roux method, and the tissue removed showed a gastrojejunal ulcer in which was a coil of retained silk suture.

Fig. 8.—Stitch attached in gastrojejunal ulcer with end hanging in jejunum. Note the scar tissue behind the ulcer causing permanent thickening and adhesions.

8. Berg: Reported by E. Key, Den kirurgiska behandlingen af ulcus ventriculi, Nord. med. Ark., 1907, vii, No. 3, 1-95.

TABLE 3.—FIRST AND SECOND OPERATIONS

Case Number	Age	Date First Opera.	First Operation	Findings First Operation	Date Second Oper.	Findings Second Operation	Probable Cause of Gastrojejunal Ulcer	Second Operation
12869	64	8/ 1/08	Post. gastro-enterostomy	Large perf. duod. ulcer	6/12/13	Large gastrojejun. ulcer, mostly gast.	?	Sep. of gastro-enteros.; mod. Finney
69645	55	10/10/12	Post. gastro-enterostomy	Calloused duod. ulcer...	6/24/13	Gastrojejun. ulcer	Knot of linen in region of ulcer	Excis. of ulcer; gastro-enter. enlarged
76684	41	12/ 5/12	Post. gastro-enterostomy	Perf. gastro-enterostomy	10/18/13	Gastrojejun. ulcer, ant. margin	Linen hanging in anastomosis	Excis. of ulcer; gastro-enter. enlarged
101545	46	1898	Ant. gastro-enterostomy; Murphy button	Pyloric obstruction.....	3/17/14	Large gastrojejun. ulcer	?	Ant. gastro-enteros.
81306	49	3/24/13	Post. gastro-enterostomy	Large post. duod. ulcer; contact ulcer	3/17/14	Gastrojejun. ulcer	Linen hanging in anastomosis	Pyl. div., gastro-enteros. enlarged
86967	51	12/12/13	Post. gastro-enterostomy	Large perf. duod. ulcer	10/12/14	Gastrojejun. ulcer	Linen hanging in anastomosis	Finney on jejunum
83614	48	5/14/13	Ant. gastro-enterostomy	Large perf. duod. ulcer	10/19/14	Gastrojejun. ulcer, indurated	?	Gastro-enteros. cut off. Resect. Pyl. Billroth No. 1
98039	30	2/10/14	Post. gastro-enterostomy	Obst. duod. ulcer.....	1/27/15	Jejun. ulcer, perf. post.	? Interrupted silk suture	Finney on duod. gastro-ent. cut off
59276	35	11/1911	Post. gastro-enterostomy elsewhere	Duod. ulcer	2/11/15	Small gastrojejun. ulcer, abscess posterior	?	Gastro-enteros. cut off; Finney pyloro.
101624	40	3/ 9/14	Post. gastro-enterostomy	Chron. perf. duod. ulcer	4/30/15	Large gastrojejun. ulcer	?	Excis. of ulcer; horse-shoe plastic
131378	42	2/ 6/15	Post. gastro-enterostomy elsewhere	?	6/ 2/15	No evidence of gastric or duod. ulcer; gastro-enteros. high on fundus; gastrojejun. ulcer	Long loops silk sutures	Excised gastrojejunal ulcer; closure gastro-enteros.
51115	51	4/ 1/11	Post. gastro-enterostomy	Large contracting duod. ulcer	2/29/12	Large gastrojejun. ulcer, mostly gast.	?	Gastro-ent. cut off; Finney for stricture of healed duod. ulc.
115553*	44	6/29/06	Ant. gastro-enterostomy 2d oper., post. gastro-enterostomy; plastic tor g-j ulcer	Duodenal ulcer; hour-glass stomach 2d oper., gastric ulcer; hour-glass stomach; gastrojejunal ulcer	3d Oper. 3/18/15	3d oper., large gastrojejun. ulcer, contracted opening	3d operation, linen sutures in ulcer	3d oper.; gastro-enteros. cut off, Finney

* Second operation 9/26/14.

Regardless of whatever associated conditions may exist which predispose to the formation of these ulcers, we must accept the retained unabsorbable suture as of immediate importance. In the Mayo clinic as a means of prevention the technic for gastro-enterostomy has been modified to the extent that (1) a few interrupted sutures of fine silk are used as stay-sutures for the serosa, and (2) running sutures of chromic catgut are used for all other purposes. Strangulation of tissue by sutures is avoided in these cases, the mucosa is carefully coapted, accurate hemostasis is sought, trauma avoided, and a sufficiently large opening, suitably placed, is made.

There is no one surgical procedure which can be adopted as an operative measure in the treatment of all gastrojejunal ulcers. The difficulties which the individual case presents are usually dependent on marked induration and inflammatory changes surrounding the anastomosis. In the presence of this induration and infection, plastic operations on the anastomosis with removal of the ulcer are associated with corresponding technical difficulties. Nevertheless, this is the general indication and proves itself to be the method of choice in the majority of cases. In some it has been possible and advisable to excise the anastomosis, close the openings in the stomach and jejunum, and do a pyloroplasty, an operation, however, which also presents difficulties on account of the scar tissue which always exists in the neighborhood of the original ulcer.

Transgastric excision may be satisfactory in an occasional case, Moynihan reporting a good result from this method in one instance.

The general plan, therefore, in the light of our present information, is to expose the line of anastomosis by either a transgastric or transjejunal incision, search for retained suture and for the ulcer, remove both, the latter either by itself or with the entire anastomosis. If the anastomosis is constricted, and enlargement is possible and safe, such treatment is satisfactory; if, however, much induration and infection exist, excision of the anastomosis, closure of openings, and gastroduodenostomy are indicated.

It is to be expected that an operation which has developed such widespread and warranted popularity as gastro-enterostomy should occasionally be associated with results which are not satisfactory; yet the comparatively low percentage of patients who are not relieved of their symptoms by gastro-enterostomy should not deter us from investigating the causes of these few failures and attempting still further improvement in their diagnosis and prevention.

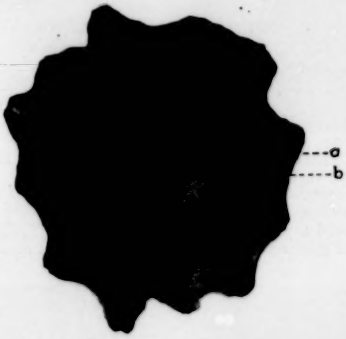


Fig. 9.—Small ulcer about 1 cm. in diameter around the suture; *a* locates the puckering of the healed mucosa; *b* is the ulcer, near the center of which is the suture.

Vitality and Disease.—The diminution of vitality is, generally speaking, the cause of diseases in the human being. Especially does this condition favor the appearance of tuberculosis. If we wish to combat tuberculosis we must seek to raise the vitality, not only of the individual, but of the nation.—G. Schenker Aran.

THE ABSORPTION OF DRUGS FROM THE NASAL SUBMUCOSA OF DOGS*

J. D. PILCHER, M.D.
OMAHA

The absorption of epinephrin from the nasal submucosa of dogs was reported about a year ago.[1] When injected into the submucosa of the anterior turbinals or of the septum, the absorption is usually very rapid, occasionally approximating that of an intravenous injection. The investigation has been extended by the employment of other drugs — alkaloids, potassium iodid, nitroglycerin, etc. — and it was found that these also are usually rapidly absorbed. A few, however, were rather slowly absorbed, but the difference depends, in all probability, not so much on the nature of the drug as on the experimental difficulties of introducing the drug into like parts of the submucosa. More extended work would probably show that there was little difference in the relative rate of absorption, but from the number of successful results, this was thought to be necessary.

METHODS

Dogs were employed under morphin-ether anesthesia. Most of the drugs used have a marked action on the blood pressure, so that this was taken as an indication of the absorption of the drug; the pressure was taken from the carotid artery. The presence of the drug in the urine indicated the absorption in the case of potassium iodid and methylene blue. The drugs were injected into the submucosa of the anterior turbinals or, less frequently, into the septum from a glass-barrel syringe. The quantity injected was usually from about 0.5 to 1 c.c.; this small amount tended to prevent overdistention of the tissues, and the escape of the injected fluid. As with epinephrin, it was found that generally the absorption was more rapid when the solution was introduced under considerable pressure, although there were numerous exceptions to this statement. The dogs differed considerably in the number of successful results; in some, the majority of injections showed rapid absorption of the drug, but in others, the absorption was very slight or failed entirely. This fact probably depends on differences in the anatomic structure of the parts, for a large turbinal would probably afford a better absorbing surface; a comparison of the gross structure of the parts was not made, however. The number of injections into any one animal was somewhat limited, as repeated puncture of the tissues led to the escape of the injected fluid and to minor hemorrhage that interfered with the injection. The drugs will be discussed singly.

HISTAMIN

Histamin (beta-iminazolylethylamin hydrochlorid) was absorbed promptly in each of five experiments;

* From the Pharmacological Laboratory, College of Medicine, University of Nebraska.

1. Pilcher, J. D.: The Absorption of Epinephrin from the Nasal Submucosa, The Journal A. M. A., July 18, 1914, p. 209.

the average fall in blood pressure was from 5 to 30 mm. (as indicated in the tracings). This was considerably less than the average fall (40 mm.) in three control intravenous injections. The dose of histamin was 0.01 mg. per kilogram; somewhat larger doses in two cases gave a greater fall in pressure.

TYRAMIN

The drug was absorbed practically as well in three nasal injections as in several control experiments by vein on other animals. The maximal rise in pressure (from 32 to 50 mm.) was reached in about three minutes, and the pressure was well sustained. The initial pressure in each case was comparatively low (from 65 to 72 mm.). The dose of tyramin was from 1 to 2 mg. per kilogram.

VERATRUM VIRIDE

This drug, in doses of from 3 to 5 mg. per kilogram, was well absorbed in three experiments. In two instances the characteristic action of the veratrum was shown by considerable cardiac slowing, from vagus stimulation, with a fall in blood pressure (from 130 to 87 mm., and from 140 to 117 mm.). In the third case a previous dose of veratrum had been given, and the nasal injection caused a rise in pressure, which is characteristic of repeated dosage with this drug. The reaction in these experiments was neither quite so prompt nor so great as from similar intravenous injections into other animals.

NITRITES

Both sodium nitrite and nitroglycerin gave prompt vascular reactions when injected into the turbinals; thus the sodium salt gave as great a fall in blood pressure, in five injections of 5 mg. per kilogram, as a number of control animals that received the same dose by vein. The percental fall was much greater with the nasal administration, for the experiments were made at a much lower level of pressure. The average fall was 19 mm. with the nasal injection and 20 mm. by the intravenous; the percental fall, 24 and 15, respectively. Four experiments with nitroglycerin, 0.5 mg. per kilogram, gave a fall in pressure of 6 to 20 mm., which was about two thirds that of a similar number of control intravenous injections in other animals.

CHLOROFORM AND STROPHANTHUS

Neither gave much response from the nasal administration. Chloroform gave a fall in pressure (from 110 to 80 mm.) in but one of eight injections of from 0.5 to 1 c.c., while the same doses intravenously were twice fatal. It may be that chloroform coagulates the tissues into which it is injected, but there is no evidence for this statement, as the tissues were not examined. Strophanthus was negative in six of eight injections of 1 mg. per kilogram; in the exceptions, the pressure rose from 10 to 20 mm., but similar doses by vein cause a very much larger rise in pressure.

Action on blood pressure from intravenous and nasal submucosa administration of histamin. Experiment B 1. Dog; upper curve, carotid blood pressure, mercury manometer; lower line, zero blood pressure. Left-hand tracing, histamin, about 0.01 mg. per kilogram, by vein. Right-hand tracing, histamin, about 0.01 mg. per kilogram, into the nasal turbinal. The dose by vein was slightly less than the nasal dose. The fall in pressure occurred about as promptly with the nasal administration as with the intravenous. The tracing shows that absorption may take place at low level of blood pressure (75 mm.).

POTASSIUM IODID

Potassium iodid was absorbed rapidly in several experiments when injected into the turbinals in a saturated aqueous solution. The appearance of iodid in the urine was taken as the criterion of the absorption of the drug. In one experimeunt the iodid appeared in the urine within one and one-half minutes of the injection into the turbinal; in other cases the reaction was somewhat slower in appearing.

To insure a good flow of urine, from 60 to 100 c.c. per kilogram of five per cent. sodium sulphate (crystalline) solution was administered intravenously; the injection was started just before the administration of the iodid and was continued for some time after it. The urine was collected from cannulas fastened into the ureters at their entrance into the bladder. When the urine flow had started, approximately 0.1 gm. per kilogram of the potassium iodid, as the saturated aqueous solution, was injected into the turbinals; this quantity made about 1 c.c. of the solution in each case. The urine was then collected in fractions and examined for the presence of the iodid by treating with sulphuric acid and sodium nitrite to liberate the iodin; the bluing of starch paste or the pink color imparted to chloroform indicated the presence of iodin. Three such experiments were made. The iodid appeared in the urine within one and one-half minutes in one case and in from five to six minutes in the others. The maximum rate of excretion was reached in two or three minutes in one case, somewhat later in a second animal, and then gradually decreased during the course of twenty or thirty minutes, when the experiments terminated. In the third experiment the fraction collected at the end of six minutes only was positive, but this will be discussed later. In a few other preliminary experiments, in which the sulphate was not given and the urine was collected directly from the bladder, the urine flow was very slight, and no iodid was found in it. Two of the animals, however, displayed the depressant action of the potassium on the circulation very promptly.

Further evidence of the rapid absorption of the iodid from the turbinals is that it caused edema of the lungs and was present in the exudate from the trachea.

Excretion of the iodid by the lungs.—In the three experiments in which the large quantities of sodium sulphate were given to increase the urine flow, edema of the lungs followed, and the fluid coming from the tracheal cannula contained iodid in each instance. From the intensity of the color reaction, even in the diluted fluid, there must have been considerable iodid excreted this way. The edema followed the injection of the iodid into the turbinals in five, twenty and forty minutes, respectively, in the different experiments. It is rather striking that the animal showing the most marked and the promptest onset of the pulmonary

edema, and in which the edema fluid gave a very strong iodid reaction, excreted very little iodid by the urine, although the urine flow was good; in this animal the iodid reaction was found but once in the urine and then very faintly. Evidently the iodid was largely excreted by the respiratory tract.

METHYLENE BLUE

Methylene blue appeared, faintly, in the urine within six minutes of the injection in one of the experiments in which the sulphate was given to increase the urine flow; the reaction failed in one other instance. It was given in 1 c.c. quantities of a 1 per cent. aqueous solution. The injections were given after those of potassium iodid and other drugs when the conditions were less favorable for absorption.

ABSORPTION AT DIFFERENT LEVELS OF BLOOD PRESSURE

The absorption took place equally well at low or at higher levels of blood pressure, from 60 to 160 mm.; thus, the greatest reaction with the nitrites occurred at the low level of 60 mm. on the injection of 5 mg. per kilogram of sodium nitrite, the pressure falling from 60 to 28 mm. It was found that epinephrin passed into the circulation at even lower pressures.

COMMENT

The experiments show that the submucosa of the nasal septum and turbinals is a very good absorbing surface for a variety of substances. This phenomenon is explained by the great vascularity of the parts, which is a well-known anatomic fact; and, further, it was pointed out in the previous paper that carmin-gelatin mixtures injected into the parts were found, on histologic examination, to have penetrated into the venous sinuses.

The possible clinical dangers and uses of this absorption were also discussed in the previous paper, and need only to be mentioned at this place. It is conceivable that, in susceptible individuals at least, dangerously large quantities of epinephrin and cocain may be introduced into the turbinals or septum preliminary to operations on the parts. Inasmuch as the absorption takes place at very low pressures, stimulant drugs, notably epinephrin, could well be introduced into the circulation through this region in cases of collapse when the need is very urgent. The technic is very simple and the size of the dose readily controlled. It is, of course, much less accurate than the intravenous method, and would be of value only when the latter was not feasible. While failure is quite common, the method could be tried in urgent cases during the preparation of the patient for the intravenous administration.

CONCLUSIONS

Many substances, such as alkaloids, potassium iodid and methylene blue, are rapidly absorbed from the nasal submucosa, especially when introduced under pressure.

Immunity in Tuberculosis.—No human race can withdraw itself from the reach of tuberculosis, and no race possesses natural immunity in any degree.—A. Calmette-Lille.

PARONYCHIA: A SIMPLE METHOD OF TREATMENT

AN ANALYSIS OF THREE HUNDRED CASES *

ISADORE SEFF, M.D.
Fellow of the American College of Surgeons
AND
SAMUEL BERKOWITZ, M.D.
NEW YORK

Although paronychia is only a minor ailment, nevertheless, it is attended by pain entirely out of proportion to the comparative extent of the disease. Though many methods in use for the treatment of this condition relieve the patients of pain, the treatment is as a rule prolonged and tedious, and the result in most cases is a disfigurement of the nail and cuticle.

The method which we have used in a series of 300 cases not only relieves the pain, but also shortens the course, restores the parts to the normal and always eliminates disfigurement.

Modern textbooks of surgery fail in most instances to give detailed directions for the treatment of paronychia. The time-honored method of splitting the nail longitudinally with a pair of scissors, under local or general anesthesia, and its removal by everting the halves with an artery clamp is still in vogue.

Fig. 1.—Acute paronychia; pushing back the cuticle.

Another method consists in making parallel incisions at the side of the nail, extending proximally the whole extent of the nail, and then reflecting a quadrangular flap. By this procedure the deformities caused by injury of the nail-bed and the matrix are avoided. The entire nail is then removed. This is a method which does not always cause disfigurement of the nail, but it is painful, and leaves scars on the finger.

AUTHORS' TECHNIC

Acute and chronic cases of paronychia requiring instrumentation are treated alike. The finger is first placed flat on the table. With the eye part of a probe held at right angles to the finger nail, the cuticle is very slowly pushed backward along its entire extent until the proximal portion of the nail appears. In some, before an attempt is made to force back the cuticle, soaking the finger in hot boric acid solution facilitates this step. It is important to push backward against the cuticle and not downward against the nail, as in the acute cases the latter procedure is always painful. Now the probe is hooked under the diseased nail at the proximal portion. It is surprising to note how easily and painlessly the nail can be lifted from its bed. The edge of the nail is cut longitudinally for a distance of one-eighth inch. Each side of the cut edge is grasped with either anatomic forceps or an artery clamp, and the nail is cut transversely, special attention being paid to the complete removal of the corners. Pain is seldom produced, as owing to the formation of pus and granulation

* From the outpatient department of the Surgical Clinic, Beth Israel Hospital.
* Reported at a stated meeting of the Practitioners' Medical Society, April 2, 1915.

tissue, there is a separation of the proximal portion of the nail from its bed. Attempts to remove more than this separated portion of the nail are always extremely painful. The distal portion of the nail remains untouched, as it protects the underlying nail-bed, and is ultimately forced off by the new-growing nail. A wet dressing of boric acid solution is applied, and the patient sent home with instructions to bathe the finger, if it becomes painful, in hot boric acid solution every three or four hours.

ANALYSIS OF CASES

An analysis of the large number of cases of acute and chronic paronychia which we have treated is worthy of discussion.

1. Eighty-five per cent. of our cases were of the acute type.
2. The thumb or index finger was involved in about 60 per cent. of the cases.
3. About 10 per cent. of the cases were accompanied by extensive superficial subcutaneous infections.
4. The *Staphylococcus pyogenes* was the predominating infective organism.
5. Eighty-five per cent. had no pain during the entire operative procedure, and 15 per cent. had only a little discomfort. No anesthesia, local or general, was required in any case.
6. Dressings were entirely removed in from ten to fourteen days.

Fig. 2.—Acute paronychia; lifting the nail from its bed.

CONCLUSIONS

The method which we have described is strongly recommended. Our results in a large number of cases of paronychia lead us to the following conclusions:

1. The method is painless and requires no anesthesia.
2. The technic is simple.
3. It shortens the period of illness, and is therefore of great value from an economic standpoint.
4. It restores the parts to normal, and is therefore important from a cosmetic standpoint.

1945 Seventh Avenue—281 East Broadway.

Fig. 3.—**Paronychia:** *A*, acute: perfect result six months after operation; absence of deformity of nail or cuticle; *B*, chronic: seventy-two hours after the nail has been cut transversely; the last boric acid dressing removed.

Cooperation Halves Operative Shock and Period of Anesthesia.—An account in the *Lancet* describes operations at the Royal Military Hospital, Devonport, illustrating the possibility of collaboration in surgical work. "The operations were for the radical cure of bilateral inguinal hernia by Bassini's method. It is said that two operators took part, one on either side. The initial incisions were simultaneous. Both operations, though varied in technic, proceeded *pari passu*; and the last skin suture in each was inserted simultaneously to a second. The only point for discussion (that of dressings or no dressings) was harmoniously compromised, and the patient is doing well, the period of anesthesia and the shock of operation being both reduced by half. Such an illustration speaks highly for surgical collaboration. Here skill met skill, not as 'Greek meets Greek,' but as allies in a hallowed cause. No small credit, too, is due to the sister who supplied both operators synchronously and speedily with their varied armamentarium."

LEPROSY OR SYRINGOMYELIA?

G. B. HASSIN, M.D.
Attending Neurologist, Cook County Hospital
GORDON BURKE, M.D.
AND
JOHN NUZUM, M.D.
Interns at the Cook County Hospital
CHICAGO

The diagnosis of so-called nervous or anesthetic leprosy is occasionally very difficult, and numerous cases have been reported in which the diagnosis could not be made at all,[1] or could be made with some probability,[2] or in which something else, usually syringomyelia, has been diagnosed.[3] Some authors have even been led to the conclusion that leprosy and syringomyelia are identical diseases.

Erroneous though such opinion may be, cases do occur in which the similarity of these two diseases is so great that a mistaken diagnosis is fully justified, but in which a careful analysis of the morbid manifestations may lead to a proper diagnosis. In this category belongs, in our opinion, the following case:

History.—Miss A. J., aged 62, entered the orthopedic service of Dr. Charles Jacobs on account of deformities of all four limbs. She was born in the eastern part of Norway, and was well during the first eight years of her life. When 8 years old she started to feel weakness and pain in the right foot. Four years later there developed on the sole of the right great toe a painful ulcer which was slow in healing and which was gradually spreading to other toes and the metatarsal bones. Two years afterward, painful abscesses developed on the fingers of the right hand, the first and the little fingers of which became gradually "contracted," and ten years later these two fingers were cut off at the middle phalanx. Four years previously, that is, ten years after the onset of the disease, the right foot was amputated. The stumps would open and heal, but never healed permanently. Four years after this amputation, an abscess developed on the great toe of the left foot, which finally was also amputated. From that time she had a number of amputations, until all fingers of both hands were amputated. The patient cannot tell how many amputations she had. The amputation stumps would heal and be followed by abscesses, bones would come out, and then another amputation would be done. The last amputation was performed nine years ago, that is, forty-three years after the onset of the disease. The present ulcers on the stumps of the legs persisted ever since that time. They would partially heal, and break open at irregular intervals. Thirty-three years ago she began to suffer from a conjunctivitis, and ectropion of the right eye, and was partially blind in the left eye for the last ten years (cataract). Venereal diseases or any other infections she denied. Menstrua-

1. Gaussel and Lévy: Syringomyélie ou Lèpre, Nouv. Icon. de la Salpétrière, 1906, p. 454.
2. Gilles de la Tourette and Zaguelman: Un cas de syringomyélie, Nouv. Iconogr. de la salpétrière, 1889, p. 311; also Doimi di Delupis: Lepra oder Syringomyelie? Wien. med. Wchnschr., 1904.
3. Milian: Semaine méd., 1899, p. 521.

tion began at the age of 19, menopause at 40. The patient was formerly a heavy whisky drinker.

Family History.—Father died at the age of 50 from a stomach disease. Mother died at the age of 58 from a throat trouble. One sister and two brothers are living and well. One brother died at the age of 50 from pulmonary tuberculosis. Two distant relatives suffered from leprosy.

Examination.—The patient is rather poorly nourished and somewhat emaciated, but not cachectic, with healthy lungs, heart, liver, etc. The skin is pale, dry and without any discoloration spots. The forearms are covered with numerous scars, mostly caused by burns with steam which she did not feel. Both hands are deprived of fingers and covered with a dense thickened skin that cannot be folded. There are no scars to be seen on the stumps, except a small scar on the right stump of the hand caused by an injury. The skin covering the stumps is white and studded on both sides with circular soft skin patches which seem to be the sole remnants of cast-off fingers (Fig. 1). The forearms show atrophy of the muscles and of the panniculus adiposus. The upper arms and the scapulohumeral region show no atrophies, and no scoliosis is present. The lower limbs show absence of feet, and terminate in large ulcers (Fig. 2) with thick pus-discharging edges surrounding plainly visible epiphyses of the bones of the legs.

Fig. 1.—Stumps of the hands.

The muscle power is good; all the movements in the upper and lower extremities, as flexion, extension, abduction, adduction and rotation, are possible, except extension and flexion of the wrists, which are drooping. Pronation is only partially possible, and adduction or abduction of the remnants of the thumbs is impossible altogether.

The eyes show normal brows, cilia and clean sclera. In the left eye there is a cataract, a conjunctivitis and an ectropion. The inner half of the right eye is sewed together, causing a smaller palpebral fissure than in the left eye. The pupillary reaction is on both sides normal as to light, accommodation and convergence. The eye closure on both sides is imperfect (lagophthalmos).

The examination of the peripheral nerves reveals a tenderness of the median, ulnar, musculospiral and peroneal nerves, but no thickening or nodosities can be found on these nerves, or on the auricular magnus.

The examination of sensibility shows loss of pain, temperature, touch and pressure senses on both hands, forearms, lower limbs, forehead and somewhat on the chest (Fig. 3). The areas of anesthesia are symmetrical, and not limited by sharp lines, but gradually end in a normal or slightly hyperesthetic area. The anesthesia has a symmetrical distribution, involving on the arms and right leg entire segments, and on the left leg appear in the form of stripes, and on the face and chest in the form of patches. The eyelids and cornea also show a marked anesthesia.

The electrical examination does not show any abnormal changes in the muscles or the nerves, the response to the galvanic and faradic currents being normal. The upper facial gives a somewhat diminished response to the electrical stimulation. Fibrillary twitchings are absent.

The reflexes—tendon, skin and mucous—are everywhere absent. The bladder and rectal functions are normal. The blood gives a negative Wassermann, and about 4 per cent. eosinophils.

The findings can be summed up as follows: The patient has been suffering for fifty-four years from trophic disorders which resulted in a total loss of fingers, toes and feet, which disorders were preceded by felon and ulcer formation. In addition, she shows a partial upper facial paralysis, pronounced anesthesia, symmetrical in character, involving all four extremities, the forehead and partly the chest. Atrophies of the small muscles of the hands, muscular twitchings, electrical anomalies, spasticities, urinary disorders and the reflexes are absent.

Such a combination of trophic, sensory and motor disorders may occur in various nervous disturbances, as tabes, neuritis, syphilis of the nervous system, diseases of the vertebrae, etc.; but they are especially suggestive of syringomyelia, of that form which is known as Morvan's disease. It is conceded that Morvan's disease or syndrome may be also caused by a peripheral nerve lesion of leprous nature, and it is necessary, therefore, to decide in any case in which symptoms of Morvan's disease are present, if we have not before us a case of leprosy.

In favor of the latter and against syringomyelia speak the facts in our case as follows: In Morvan's disease, the trophic disorders are limited to the upper extremities, sometimes to one hand only, as in the cases of Jeanselme[4] and Charcot,[5] while in our patient both upper and lower limbs are involved. There were cases of Morvan's disease reported in which, as in Herbert's case,[6] the trophic disorders were confined to the toes only, or as in Fletcher's[7] case, in which both the fingers and the toes were affected; but such cases are so rare, so unusual, that the presence of trophic disorders on all four limbs is generally considered typical for leprosy (Schlesinger,[8] Jeanselme,[4] Schaeffer[9]). Further the anesthesia in syringomyelia usually involves the upper limbs, including the chest, trunk and, in extensive lesions, also the lower extremities, or it may involve half of the body;

Fig. 2.—Stumps of the lower limbs.

4. Jeanselme: Leprosy Congress in Berlin 1897, Med. Week., 1897, p. 508.
5. Charcot: De la Maladie de Morvan, Semaine méd., 1889, p. 454.
6. Herbert: A Case of Unilateral Syringomyelia in a Child, Indiana Med. Jour., 1905, p. 85.
7. Fletcher: Syringomyelia (Morvan's Type) in a Child, Proc. Roy. Soc., London, Clinical Section, 1910, p. 98.
8. Schlesinger: Syringomyelie, Vienna and Leipzig, 1902, Ed. 2, p. 270.
9. Schaeffer and Francais: Syringomyélie à la forme lépreuse, Rev. Neurol., April 14, 1910.

is usually radicular in type, that is, it follows the course of the posterior roots, and is sharply limited by straight lines, ending abruptly.

In our patient, the anesthesia is very pronounced on the peripheral portions of the four limbs, does not end abruptly, is in the form of patches on the face and chest, and in the form of stripes on the left leg; otherwise it resembles the stocking and glove variety of anesthesia which, according to Jeanselme, is of usual occurrence in old cases of leprosy. The absence of tendon and mucous reflexes speaks against syringomeylia, which, however, may show loss of reflexes if the posterior columns of the spinal cord are the seat of the lesion. A clinical picture of tabes, then, may obtain, the so-called pseudotabes gliomatosa of Oppenheim,[10] which is in our patient absent.

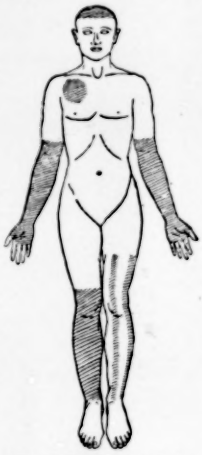


Fig. 3.—Areas of anesthesia.

Paresis of the upper branches of the facial nerve almost never occurs in syringomyelia. If the facial nerve happens to be involved in the latter, then the *lower* branches are affected (Hallopeau,[11] Laehr,[12] Schlesinger[4]). The same can be said of the ectropion which, in combination with the upper facial paresis, anesthesia of the lids, cornea, double flaccid paralysis of the hands, absence of scoliosis, of muscular twitchings, of atrophy of the small muscles of the hands, and of electrical changes, speak against syringomyelia.

There is another feature in our patient which is considered characteristic of leprosy, namely, absence of scars on the stumps of the hands and the peculiar condition of the bones as revealed by Roentgen examination (Figs. 4 and 5). The patient reports that the fingers were lost through successive amputations. If such be the case, then there ought to be some scars visible either as the result of the operations, or as that of the suppurations. Careful examinations did not show any scars, except one small scar on the tip of the right second metacarpal bone. Baëlz,[13] Sabrazès,[14] Jeanselme[4] and Harbitz[15] explain the absence of scars by the gradual absorption of the rarefied, decalcified bones of the fingers, which gradually shrink, until, with the absorption of all the phalanges, the fingers are reduced to mere remnants, deformed patches, as shown in Figure 1. The Roentgen ray shows the osteoporotic condition of the bones, lack of lime salts and the atrophied size of the shafts and epiphyses of the metacarpals. Such bone changes have been and are considered characteristic for leprosy (Goldscheider,[16] Sabrazès,[14] Jeanselme,[4] Miura,[17] Marestang,[18] Boeckman,[19] Harbitz,[15] Herrick and Earhart[20]) occurring in the early stages of this disease. In syringomyelia, the bones show no atrophy; rather do they appear hypertrophic in the shaft and epiphyseal ends, which fact was long ago pointed out by Déjerine.[21]

If all these findings strongly speak in favor of leprosy in our case, there are some points which are somewhat doubtful. We mean the nerve thickening and the presence of lepra bacilli. The thickening of the peripheral nerves is occasionally represented by local swellings, or nodules, and, according to Baëlz, are to be found on the great auricular nerve, where they can be demonstrated in 90 per cent. of leprosy cases. In other words, there are cases, especially old ones, in which the thickening is absent, and the absence of thickening does not speak against the diagnosis of leprosy.

In regard to the lepra bacilli, we wish to state that a number of frozen sections were made from the removed tissues of the legs, stained with different methods, and in only two specimens a very limited number of bacilli were found. There were no so-called lepra cells, but the bacilli closely resembled in their shape and staining properties

Fig. 4.—Roentgenogram of hand.

Fig. 5.—Roentgenogram of hand.

10. Oppenheim: Lehrbuch der Nervenkrankheiten, Berlin, 1908, i, 439.
11. Hallopeau: Leprosy Congress in Berlin, 1897, Med. Week., 1897.
12. Laehr: Lepra und Syringomyelie, Berl. klin. Wchnschr., 1897, No. 3.
13. Baëlz: Zur Lehre von der Lepra und Ihrer Behandlung, Berl. klin. Wchnschr., 1897, p. 999.
14. Sabrazès: Leprosy Congress in Berlin, 1897.
15. Harbitz, Francis: Trophoneurotic Changes in Bones and Joints in Leprosy, Arch. Int. Med., August, 1910, p. 147.
16. Goldscheider: Semaine méd., 1899, p. 111.
17. Miura: Mitt. a. d. kais. Univ., Tokio, 1898, iv, 107.
18. Marestang: Contrib. à l'étude du Diagnostic Differentiel de la Lèpre Anesthétique et de la Syringomyélie, Rev. de med., 1891, p. 781.
19. Boeckmann, Eduard: Clinical Aspect of Leprosy, THE JOURNAL A. M. A., Sept. 20, 1913, p. 946.
20. Herrick, A. B., and Earhart, T. W.: The Value of Trophic Bone Changes in the Diagnosis of Leprosy, Arch. Int. Med., June, 1911, p. 801.
21. Déjerine: Syringomyélie, Semaine méd., 1899, p. 194.

the tubercle bacilli. It is generally conceded by leprologists, like Hansen, Schlesinger, Darling,[22] Laehr, Impey[23] and others, that in chronic, old cases of leprosy neuritis, the bacilli of leprosy cannot be demonstrated, and in a case of fifty-four years' standing, like ours, it is almost impossible to demonstrate them. On the other hand, leprosy and syringomyelia may be combined, as in the case of Gerber and Matzenauer,[24] and nerve thickening may be present in unquestionable cases of syringomyelia, as in cases of Steudener[25] and Langhans,[26] which were intra vitam diagnosed as leprosy and as such interpreted. At any rate, absence of this sign, or even of leprous bacilli, cannot shake the diagnosis of leprosy, in the presence of numerous other signs, as total anesthesia of all four limbs, of the conjunctivae, absence of scars on the stumps, involvement of the upper facial nerves, absence of atrophies typical of syringomyelia, of fibrillary twitchings, of electrical changes, with the presence of typical changes in the bones.

All these negative and positive signs, their multiplicity, as Laehr[12] puts it, are very characteristic of leprosy, and are all present in our patient.

The question arises, Which of these "multiple" signs ought to be considered characteristic for leprosy?

Of bone changes we spoke already, and we should like to say a few words in regard to another sign which, in our opinion, is highly characteristic for leprosy. Here belongs the topography of the sensory disturbances, the distribution of the anesthesias. These affected, in our patient, all the four extremities, and gave a similar picture in all of the eight cases of Marestang,[18] and is pictured by Russy[27] in Marie's collective work as typical for peripheral lesions of leprous nature.

In syringomyelia, the upper limbs, as a rule, are involved, and the lower limbs only in the so-called lumbosacral form, when the cavities involve the lower portion of the spinal cord. In cases of syringomyelia in which the cavities are extensive, all along the spinal cord, medulla, etc., as in cases of Hoffman,[28] Spiller,[29] Knoblauch[30] and Steudener,[25] the anesthesia will involve not only the upper and lower limbs, but also the rest of the body. Cases of syringomyelia in which the sensory disorders resemble those in our patient, being confined to the peripheral portions of all four limbs, we did not find recorded, except one case cited by Bruhl.[31]

But the patient in this case had an ectropion, profound trophic disturbances, as perforated ulcers, etc., which facts speak rather for leprosy than syringomyelia. In fact, it would be impossible to give an anatomic reason for the presence of sensory anomalies on the four limbs only, unless we accept two cavities, one in the cervical, and the other in the lumbar region, separated by a healthy spinal cord. If such a possibility is mentioned in the literature (Bruhl), then we ought to have symptoms of the lumbosacral form of syringomyelia, as described by Schlesinger[8] and Herbert,[6] but which are absent in our patient.

Therefore, we must consider the presence of anesthesias on the four limbs typical for leprosy, especially if additional signs be present, as bone changes, upper facial paralysis, total loss of reflexes, etc. As all these signs were present in our patient, we are fully justified in diagnosing our case as anesthetic leprosy.

31 North State Street—Cook County Hospital.

22. Darling: The Journal A. M. A., September, 1910, p. 912.
23. Impey: The Noncontagious Nature of Anesthetic Leprosy, Med. Week., 1897, p. 485.
24. Matzenauer and Gerber: Lepra und Syringomyelie in Obersteiner's Arbeiten, IX, 1902.
25. Steudener: De Lepra Anesthetica sive mutilans, Halle, 1867; abstr., Virchow-Hirsh's Jahresb. ü. die Leist. u. Fortsch. d. ges. Med., 1868, p. 404.
26. Langhans: Zur Casuistik der Rückenmarkaffectionen, Virchows Arch. f. path. Anat., 1875, lxiv, 169.
27. Russy, in Pierre Marie: La Pratique Neurologique, Paris, 1911, p. 349.
28. Hoffman: Zur Lehre von der Syringomyelie, Deutsch. Ztschr. f. Nervenh., 1892, iii.
29. Spiller: Syringomyelia and Syringobulbia, Brit. Med. Jour., Oct. 20, 1906, p. 1017.
30. Knoblauch: Krankheiten des Centralnervensystems, 1909, p. 154.
31. Bruhl: Contribution à l'étude de la syringomyélie, Paris, 1890, p. 154 (Case 8).

FOREIGN BODY IN THE LUNG

REPORT OF A CASE IN WHICH THE PRIMARY DIAGNOSIS WAS SUGGESTED BY A BLOOD EXAMINATION *

GEORGE L. RICHARDS, M.D.
Otologist and Laryngologist, Union and St. Anne's Hospitals
FALL RIVER, MASS.

A man, aged 25, with negative family history, from some time in early childhood up to the time of coming under observation had occasional attacks of asthmatic breathing, bronchitis and chills. Since 1910, occasional chills followed by fever of 101 to 103 and lasting but a few hours had been the particular symptom. The intervals between the attacks had varied from a few days to a few weeks, and immediately after the attack, and also on the day following, the patient would feel perfectly well. He entered college in 1910. A lung examination by a general physician, on what date I am unable to find out, says that there was a little trouble near the right nipple line; but what this trouble was, was undetermined. He had an occasional whistle on breathing, which, during these years, was thought to be due to chronic asthma. July 12, 1913, a local physician advised that he have a blood count, which showed a white count of 16,120 with an increase of polymorphonuclears. Medicine was given at this time, but being no better, he was taken to a stomach specialist who suggested a Roentgen examination. This examination was made by the fluoroscope only, and nothing abnormal was noticed. His mother then took him to a diagnostician in Boston, who looked the boy over carefully, but could find nothing particular the matter. He thought that whatever it was, it would pass away, as in the intervals and when examined by a physician he appeared to be in good condition. The mother, supposing the fluoroscopic examination was a complete Roentgen examination, stated to the physician that the Roentgen examination was negative.

Another blood count was made, Feb. 28, 1914, when the white count was 12,200 with slight increase of polymorphonuclears. In July, 1914, the patient went to Europe, but on the way over on the steamer had two chills, and again a chill in Florence. In Florence he was taken to a physician who suggested that there might be some trouble in the right lung, but was unable to determine just what it was. These chills, as stated above, lasted from two and one-half to three hours, and were followed by a temperature of from 101 to 103, and, as before, he appeared perfectly well the day following. He was brought to me, Nov. 30,

* Presented before the Thirty-Seventh Annual Meeting of the American Laryngological Association, Niagara Falls, June 3, 1915.

1914, to find out whether he was fitted to work in a caisson in one of the New York subways, as he had been trained for engineering work. I had a blood examination made at this time, and found a leukocytosis of something over 12,000. I went over his chest and general condition and found that he had occasional twinges of pain a little below and slightly to the left of the right nipple, but did not detect anything out of the way, nor did I then suggest a Roentgen examination. I told him he could probably go on with the work desired. He went to New York to see about his place, but had a severe attack and chill the first day he was there, and immediately gave up and came home without making any attempt to get the job. He did not report to me, however, until several days later, when he appeared to be all right. He had had another attack since his return to Fall River, but less severe, and was coughing slightly. I had another blood count made, this time finding whites 12,480, with an increase of polymorphonuclears to 88 per cent. A search was also made for typhoid by the Widal reaction, and for tuberculosis from the little sputum we were able to obtain; the blood also was examined for malarial organisms, but with negative results.

Fig. 1.—Roentgenogram, showing tack.

On thinking over the case, it struck me as being rather peculiar that we should have here an apparently healthy young man with occasional attacks of pain, occasional attacks of chills and fever of very short duration, with only a suggestion of a cough, but with a moderate steady leukocytosis and with no definite physical signs. At this moment it suddenly dawned on me for the first time that the symptoms were more suggestive of a foreign body in the right bronchus than anything else, a foreign body in a cavity which probably filled up at times, causing absorption, and then emptying itself, remaining open a longer or shorter time. I therefore had a Roentgen examination made, which disclosed a tack in the right bronchus.

There is no history as to when the tack entered the lung. The patient does not remember to have ever swallowed anything of the kind. A review of the history of the case seems to show that very likely the tack was introduced many years before, as when it was finally removed, its condition was such as to justify this supposition. I assumed that it was probably more or less encapsulated, was probably in a cavity, and that between the head of the tack and the main bronchus there might be quite a band of adhesive or inflammatory tissue, which opinion was confirmed by the hearing of an occasional whistle on auscultation. I had in mind such a case as is described in the English edition of Brünings' Book on Bronchoscopy, p. 353. I took the patient to Dr. Chevalier Jackson, Pittsburgh, to verify the diagnosis and to remove the tack.

Two roentgenograms were taken in Pittsburgh; each verified the diagnosis as to location, and as to the probable narrowing of the bronchus between its location and the main bronchus. Dr. Jackson, after previous administration of morphin and atropin, under cocain anesthesia, and with the aid of the upper lobe bronchus forceps, after dilatation of the stricture bronchus, removed the tack. At no time could it be seen by direct inspection. Dr. Jackson was able, however, so far to feel within the bronchus as to locate the tack first with a probe. After several attempts the head was grasped and removed. The point of the tack, however, was not forthcoming; the head was much eroded and covered with oxidation products. It showed the probability that it had been in this position a long time, with the result that the tack had been so far rusted away and the oxidation products cast off sufficiently to separate the point of the tack from the head. Two portions of black, ironlike débris were removed. No reaction followed, and no chill or any further trouble with the lung has occurred since.

In the light of our present knowledge of this case, it is easy to ask why a roentgenogram was not taken, and the question is a proper one. Yet it did not occur to any one until the persistent low leukocytosis, together with the suggestion of bronchial asthma and the point of occasional pain, finally made the clinical picture so clear that I assumed there must be a foreign body, and had the roentgenogram made. The moral is, that in any case of possible trouble in the chest, abdomen or elsewhere not readily cleared up, the Roentgen ray should be used with the hope that it may aid in clearing the diagnosis. Again, foreign bodies which have been in the chest a long time and are unsuspected are probably far more common than any of us have yet ascertained.

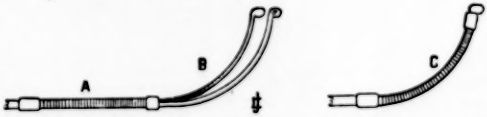


Fig. 2.—Jackson upper lobe bronchus forceps.

AFRICAN TRYPANOSOMIASIS

REPORT OF A CASE

HOWARD K. TUTTLE, M.D.

SOUTH ACTON, MASS.

Patient.—I. S., No. 181943, man, negro, aged 35, native of Cape Verde Islands, was admitted to the Massachusetts State Infirmary from New Bedford, Oct. 7, 1914. The patient was unable to understand English, and as a good Portuguese interpreter was not available at the time, his history could not be obtained. He was observed for several weeks, and considered a negro of low mentality, unable to accustom himself to the changes in this country, or perhaps a beginning paretic. He spent a great part of the time in bed, but was up walking about the ward part of each day.

About this time, an intelligent negro from the Azores, who spoke Portuguese and English fluently, was admitted to the hospital, and the following history was obtained through this interpreter:

History.—Two years before coming to the United States, the patient emigrated to Portuguese Guinea, on the west coast of Africa, from the Cape Verde Islands. There he remained for a year and a half. During this time he had a fever that lasted for eight days. He also recalled being bitten by insects on several occasions. At the end of his stay in Portuguese Guinea, he returned to the Cape Verde Islands in company with a large number of African negroes. On arriving at the Cape Verde Islands, about a hundred of these African negroes were not allowed to land on account of a sickness they had, and were immediately returned to Africa. As the patient showed no sign of disease, he was passed by the health inspectors. Shortly after returning to the Cape Verde Islands, he sailed for the United States, landing at the port of Newport, R. I., April 14, 1914. From there he went directly to New Bedford. A month after coming to New Bedford he began to sleep a great part of the time, and noticed that he was gradually growing weaker.

At the time this history was obtained, he presented the following symptoms: The predominating feature was the marked apathy, the patient lying in bed with the clothes drawn up over his head. At times he would lie on the floor in front of the fire-place, and immediately drop to sleep. At other times he would sit in a chair all day, apparently asleep, only awaking to eat his meals. From this condition of lethargy he could be easily aroused, and would answer questions intelligently through an interpreter. His gait was slow and shuffling in character; he dragged the toes, and was seemingly unable to raise his feet from the floor. His appetite was good, even large at times. He was habitually constipated. It was seen that he was rapidly losing his strength. One day he told the interpreter he wished to return to Africa, where there was a medicine that would cure his sickness. Immediately atoxyl and sleeping-sickness were thought of.

Physical Examination.—This showed the following: A large, well-developed and well-nourished negro, weighing approximately 180 pounds. His face and forehead were wrinkled, giving him a pititul expression as he looked at one with wide-open eyes. There was a fine tremor of the tongue with lateral contractions, and seeming difficulty in keeping the tongue protruded. Tremor of the face, extremities, and abdominal muscles was also noted, at times becoming coarse and exaggerated, so much so that on several occasions the nurses reported epileptiform seizures. The pupils were equal and reacted to light and distance; knee-jerks and other superficial reflexes were normal. The glands of the posterior triangle of the neck were small, shotty, and easily palpable. The skin was dry and scaly, and itched considerably. Over the abdomen a mottling was noted, caused by slightly raised and desquamating papules, which the patient stated resulted from pimples about the time he came to this country. There was a distinct hypersensitiveness to pain when the abdomen or extremities were deeply pinched. Heart and lungs, negative. Spleen palpable about one inch below the costal margin. Fundus oculi and ears, normal.

Blood Examination:

Red cell count	4,520,000	
White cell count	18,500	
Hemoglobin	70	per cent. (Tallqvist)
Differential white cell count	600	cells
Polymorphonuclears	25½	per cent.
Lymphocytes	35	per cent.
Large mononuclears	4⅔	per cent.
Transitionals	1⅓	per cent.
Eosinophils	33⅓	per cent.
Mast cells	⅓	per cent.

Auto-agglutination of the red cells was noted. Hanging drop and stained smears were negative for parasites. Wassermann negative. Smears from 10 c.c. citrated blood, centrifuged for fifteen minutes, the smears being taken from the leukocytic layer, showed no parasites. Smears from 10 c.c. citrated blood, centrifuged three successive times of fifteen minutes each, smears being taken from the last sediment, all were negative for parasites.

Lumbar Puncture.—About 30 c.c. of spinal fluid were obtained, slightly cloudy, pressure slightly raised, and centrifuged for thirty minutes, smears and hanging drop preparations being made from the sediment. Smears stained with Hasting's stain showed the *Trypanosoma gambiense* fairly numerous on most slides. There were also seen numerous diplococci, some encapsulated, and some resembling the diplococcus of epidemic cerebrospinal meningitis, but occurring outside the cells. Pneumococci and a diplobacillus also were noted. This was presumably a mixed microbial infection, so often reported in the terminal stages of trypanosomiasis. There was a marked preponderance of lymphocytes noted in the cells of the spinal fluid.

Subsequent Course.—The patient grew weaker gradually, becoming neglectful in his habits; when up about the ward he could be seen with his clothes half buttoned, and his shoes unlaced. He frequently complained of headache. The marked lethargy continued as the predominating feature. He soon was compelled to remain in bed most of the time, and the progressive loss of strength made it necessary for him to have assistance in going to and from the bath room. He soon became unable to walk at all, and would lie in bed with his head retracted, the thighs flexed on the abdomen, and the legs on the thighs. He became incontinent, and so weak that it was almost impossible for him to carry a piece of bread from the bedside table to his mouth. The increased tremor of the face and tongue made it difficult to swallow, and his mouth had to be frequently cleaned out while eating, to prevent him from choking. He developed an iritis of the right eye, with an accompanying photophobia. His temperature and pulse were continuously normal until four days previous to his death, when an afternoon rise to 101 F. was reached, with a corresponding increase in pulse rate. The cerebral irritation became more noticeable, as evidenced by muscular twitchings, becoming almost convulsions, and by nystagmus.

The patient was given 0.6 gm. of neosalvarsan intravenously, and this seemed to add to the cerebral irritation, as he developed convulsions, and the temperature went to 107 F. by axilla. He died the following night, Jan. 7, 1915, apparently in a convulsion. His death was rather unexpected so soon, as he had not reached the stage of emaciation and bedsores described as the terminal scene in the textbooks on tropical medicine.

Postmortem showed a body still fairly well nourished and having considerable subcutaneous fat. Rigor mortis was not especially marked. On removal of the spinal cord, the coverings were somewhat thickened, and a small amount of pus was present between the layers. Opening of the skull revealed the sinuses and vessels of the pia injected. There were adhesions of the pia mater to the brain substance. In places the membranes were thickened. There was no apparent widening of the sulci, but the cortex seemed noticeably

thin. There was no excessive fluid in the ventricles. The spleen was considerably enlarged and firm. The cortex of each kidney seemed thicker than normal, but the markings appeared distinct. The urinary bladder was filled with urine. Sections were taken from the cord, meninges, cerebrum, cerebellum, pons, medulla, spleen, kidneys, liver and small glands of the neck. From the gross postmortem findings it would have been difficult to determine the cause of death.

Microscopic examination of cut sections from the cortex, pons, medulla, cerebellum and different levels of the spinal cord showed marked perivascular infiltration with small lymphocytes and plasma cells as the predominating feature. The infiltration was noted surrounding the vessels of the covering membrane as well as the brain and cord substance. There was an apparent increase in neuroglia, shown by the increased number of cell nuclei. Capillary hemorrhage into the brain and cord tissue was common, and the eosinophilia which existed before death was evidenced by the number of eosinophils seen in the transected blood vessels. Long-continued search of many sections failed to show trypanosomes. They may have been due to the delay in obtaining permission for the necropsy.

COMMENT

African trypanosomiasis, afflicting human beings, is caused by the *Trypanosoma gambiense* and the *Trypanosoma rhodesiensi*. These parasites belong to a large family, frequently found in the blood of animals, birds and fish. Among the few pathogenic are the *Trypanosoma evansi*, causing surra, a disease of domestic animals in India; the *Trypanosoma brucei*, causing nagana, a disease very virulent among domestic animals in Africa, and the *Trypanosoma equiperdum*, causing dourine, a disease of horses in Africa, parts of Europe, and the United States.

The human trypanosomes are frequently found in the blood of domestic and wild animals of Africa, but are apparently harmless to them; however, this fact is of great importance in relation to human trypanosomiasis, as these animals serve as "reservoirs" for the parasites, which are transmitted to man by the tsetse-flies, *Glossina palpalis* and *Glossina morsitans*, sucking the blood of the animals, and then biting human beings. Thus it will be seen that these two species of tsetse-flies act as the intermediary host for human trypanosomiasis much the same as the mosquito does in malaria.

African trypanosomiasis of man is divided into two distinct phases, the first, the trypanosome fever, being characterized by a long and continuous fever, generally of an intermittent or remittent type, and accompanied by erythematous or papular skin lesions, enlargement of the lymphatic glands, localized edemas, slight anemia, enlarged spleen, with increasing debility and apathy. Thus the first stage may continue for weeks or even months, gradually merging into the second, or final stage, known as the sleeping-sickness. This stage is typically described in the case report.

Sleeping-sickness is of interest in this country mainly through its rarity. We know that it was recognized by the early slave traders as a serious affliction, for they refused to take natives with enlarged glands. Undoubtedly some patients found their way into this country in this manner, as they did into the British West Indies; but they eventually died out, and there are no records showing that the disease was ever transmitted to others, after reaching this country.

Old skippers of trading vessels touching at ports on the west coast of Africa tell of seeing the natives lying around on the decks and piers with the saliva drooling from their mouths. The skippers mistook them for lazy negroes, while in reality they were unquestionably infected with trypanosomes.

In 1901, Dutton recognized the parasite in the blood of a patient in the Gambia district, and gave it the name of *Trypanosoma gambiense*. A year later, Castellani found the same organism in the spinal fluid of natives suffering with sleeping-sickness. It was not until two years after, however, that it became clearly understood that the trypanosome fever and sleeping-sickness were different phases of the same disease, and that both were caused by the *Trypanosoma gambiense*.

This disease has become of vital importance throughout Africa, as it has rapidly spread, so that now a large part of tropical Africa is infected, and, owing to the high mortality, certain areas have become completely depopulated.

Various methods of treatment are being tried, including the arsenic preparations and antimony which perhaps give the best results, prophylactic measures, tending to destroy the tsetse-flies and their breeding places, isolation of infected persons, and removal of those not infected away from the fly districts. Whether or not the disease could get a foothold in other tropical countries where it is now unknown would depend entirely as to whether a suitable intermediary host to act the rôle of the tsetse-fly was found. Chagas has found a trypanosome, most commonly infecting young children, endemic in parts of the state of Minas Geraes, Brazil, and transmitted by a species of bug, *Lamus megistus*. Other allied species apparently have the power to transmit the infection.

Questioning Cape Verde Islanders, it was found that very few of them took the trip to the African mainland, and that sleeping-sickness was unknown to them on their native islands.

A peculiar feature of the case reported is the entire absence of signs and symptoms of the early stage of the infection, unless we are willing to accept the eight days' fever the patient admitted having in Africa as such. Short fevers in tropical countries are rather vague and may be due to various causes. A few differences to the usual picture of these cases are noted. Instead of a mononuclear increase of the white cells, we had a marked and persistent eosinophilia. There was a scarcity of trypanosomes in the blood, repeated searching of centrifuged specimens failing to reveal them. The smallness of the glands made it impossible to aspirate gland juice. During the entire stay in the hospital there was little variation of temperature or pulse from the normal until four days preceding death. The rather sudden death brought on by mixed microbial infection is in common with the cases studied postmortem by Mott.

While this case was typical from the standpoint of books on tropical medicine, it is probable that death would have been attributed to general paralysis, cerebrospinal syphillis or pellagra, had it not been the good fortune to obtain a bright, fluent interpreter at the right time. The patient's statement that he desired to go back to Africa where there was medicine to cure his sickness was the key to the situation.

Medical Advertising.—The advertising columns of the newspapers, and especially religious papers, have always been and still are the greatest enemies of honest medical practice.—Presidential Address, Edward F. Parker, M.D., *Jour. South Carolina Med. Assn.*, May, 1915.

NONSUPPURATIVE SUBPHRENIC PERITONITIS

HAROLD NEUHOF, M.D.
NEW YORK

In 1912, I described by this term a not uncommon complication of appendicitis,[1] and stated that "nonsuppurative subphrenic peritonitis complicating other conditions such as abscess of the breast, cholelithiasis, traumata, etc., has been observed and may be the subject of a future communication." The varying etiology had no striking effect on the clinical picture, and no new observations were made. Therefore the subject was not further dwelt on. The object of the present paper is, in part, a brief review of the subject in order to show that "the group of cases of subdiaphragmatic inflammation not hitherto recognized," recently described by Lee,[2] presents a clinical picture that coincides with the one already reported by me.

That a nonsuppurating subphrenic inflammation could exist appeared to have been almost entirely overlooked theretofore.[3] My paper dwelt with the condition only as a complication of appendicitis, for the latter was the most frequently observed cause. The clinical picture was characteristic, but there were some differences in physical signs and symptoms in the fifteen reported cases. The variations depended on differences in the site, intensity and the extent of the inflammation, the amount of ballooning of the diaphragm, pleural involvement, and lung compression.

To describe a typical case: Fever returns, and the patient complains of some pain in the right lower chest several days after the appendicitis operation and the subsidence of peritonitic manifestations. In the earliest stages, physical examination may reveal very slight changes; often, however, one finds intercostal tenderness near the base of the right axilla or more posteriorly, some dulness and diminished breathing in the tender area, and perihepatic friction sounds. At the height of the infection, intercostal tenderness and rigidity localized to the seventh, eighth and ninth spaces in the axillary zone (or more diffusely spread over the right lower chest) are usually pronounced. The intercostal tissues are resistant, the spaces are occasionally obliterated. The area of dulness rises to a varying elevation, sometimes reaching the level of the scapula; it is generally highest in the axilla, the upper margin of dulness curving downward from the most elevated point. The percussion note is often flat at the base. Fremitus, voice and respiratory sounds are usually diminished over the dull area, and all three may be absent at the base. The breath sounds often have a faintly tubular quality. In the later stages of the infection, pleural or perihepatic sounds are uncommon. The liver may be palpable, but is not tender. Pronounced leukocytosis, with high polynuclear percentages, is present almost invariably. The temperature curve follows a very irregular course, beginning rather abruptly and dropping gradually; chills do not occur. The duration of the symptoms and physical signs is from five to thirty days. In seven of the nine cases in which exploratory aspiration for suspected subphrenic abscess was employed, it was followed by an almost critical drop in temperature and by recession of the symptoms and physical signs. These evidences of the rapid recovery that ensued were interpreted as the unexpected therapeutic results of exploratory puncture. Severe prostration was infrequent in nonsuppurative subphrenic peritonitis. All the patients recovered and were free from complications and sequelae with one exception. There persisted, in this case, some symptoms and signs ascribed to the roentgenographically demonstrated permanent elevation of the right half of the diaphragm.

At the time my paper was published, the only actual proofs of the existence of the subphrenic inflammation were: 1. An exudate extending from the region of the ascending colon over the superior surface of the liver, seen at a laparotomy in one case. 2. Dense inflammatory tissue between the liver and the ballooned diaphragm, encountered in the exploration of the space, in another case. 3. Resistance to the aspirating needle and the withdrawal of small amounts of clear fluid, in several cases. Since then I have had the opportunity[4] to observe the postmortem examination made on a patient who died some time after a subphrenic peritonitis. The latter had no bearing on the cause of death. The diseased gallbladder, containing several calculi, was the evident source of the subphrenic infection. Dense fibrous adhesions spread from the gallbladder to the duodenum; in the opposite direction, to the subphrenic space, in a broad area adherent to the superior surface of the liver. The adhesions were less dense in the highest part of the subphrenic space. The diaphragm was also involved here, the opposed hepatic and diaphragmatic surfaces being firmly bound together. There were no changes under the capsule of the liver to suggest that it was the source of the infection, and no findings to indicate that suppuration had existed in the subphrenic space.

Turning to the description of the group of four cases reported by Lee, the close parallel in clinical picture and course is at once evident. There was the same considerable variation in the manifestations, but the general conformation to a definite type. The infection was ushered in by fever and, in two cases, by cough and pain in the right chest. The physical signs were dulness over the right axilla or more posteriorly, merging into flatness at the base. The dulness sometimes extended to the level of the scapula, its upper border following the curved line of Ellis. Lee observed two constant characteristics of the area of dulness. By light percussion its upper level was several inches higher than by deep percussion. The zone of dulness (and of flatness) descended with inspiration. In addition, the Grocco sign was invariably present. Fremitus, voice and breathing were diminished over the dull area, and were absent at the base in several instances. Friction sounds were heard in three cases. In one case there was considerable bulging of the lateral chest wall over the liver, and the intercostal spaces were obliterated. Roentgenoscopic examinations always showed an abnormal elevation of the right half of the diaphragm, persisting in two cases after the infection had cleared up. The temperature always ran an irregular course, tending to fall by lysis; its duration was from eight days to four weeks. None of the patients had chills. Blood examinations showed an active leukocytosis (reaching 55,000 in one case) with high polynuclear percentages.

1. Neuhof, Harold: Surg., Gynec. and Obst., March, 1912.
2. Lee, R. I.: Subdiaphragmatic Inflammation, THE JOURNAL A. M. A., April 17, 1915, p. 1307.
3. Previous suggestive observations are reviewed in my paper.
4. At the Krankenhaus Friedrichshain, Berlin, through the courtesy of Prof. Ludwig Pick.

All the patients recovered spontaneously. Lee states that the etiology of the subphrenic infection was unknown, in his series of cases, although he points to its development after an operation for incarcerated hernia, in one case. In another case there was a possible association between the subphrenic infection and a prolonged diarrhea.

From the foregoing, it can be said that Lee's contribution is of distinct value in the presentation of more clean-cut physical signs of nonsuppurative subphrenic peritonitis and in the demonstration that more obscure foci than a diseased appendix, gallbladder, etc., may be the source of the infection. In all respects, however, the clinical pictures of the groups of cases reported by Lee and, previously, by myself, are identical. The existence of the lesion is finally established by the reported postmortem examination.

1275 Madison Avenue.

OTITIC PNEUMOCOCCIC BACTEREMIA*

ARTHUR S. TENNER, M.D.
NEW YORK

Cases of simple otitis media with bacteremia are sufficiently rare, or are so seldom recorded in the literature, as to warrant the report of the following case:

B. S., girl, aged 9, was taken ill, March 5, 1915, with fever and malaise. A saline cathartic was administered, and, March 7, the temperature dropped to 99, but rose during the night, accompanied by severe pain in the left ear. I saw the patient for the first time on the following day, that is, on the fourth day of the illness, and found the temperature 102.6, pulse 110, respirations 24. The patient complained of pain in the left ear. The throat was normal, turbinates congested, right ear normal, left tympanum bulging and deeply congested. An immediate myringotomy was done. Despite the fact that there was a copious bloody serous discharge, the temperature rose that night to 105 and remained the following day between 103 and 104. The right ear drum was pale and normal. There was no pain in the left ear. During the night there was pain in the right ear, and the following morning the right ear drum was found to be bulging, deeply congested, and almost black. A liberal incision in the drum was made. Again the temperature rose during the night to 105. The following day, March 11, there were no pain and no mastoid tenderness; both ears drained freely with bloody serous discharge, and the temperature ranged from 102 to 105. Smears from the ears showed the pneumococcus.

March 12, Dr. E. Libman examined the patient; he could find no lung, meningeal or other complication. A blood culture was taken. The temperature at that time was 101.6, but rose during the night to 106. The patient was somewhat delirious. Leukocytes, 14,000. Polymorphonuclears, 61 per cent.

March 13, blood cultures as yet showed no growth. The temperature fluctuated between 102.5 and 105.8. Discharge from the left ear was almost nil, and the membrane was becoming pale. The right ear was discharging freely. Despite the continued high temperature, I felt reasonably sure that there was no mastoiditis. There were no chills at any time, the patient was withstanding the high temperature very well, and I felt justified in waiting another day.

March 14, the ninth day of illness, the temperature in the morning was 98.4. There had been a steady drop during the night from 105.8. My delight was somewhat clouded by a report that the blood culture showed a growth of pneumococcus, but it was slight, only one colony. This was thirty-six hours after blood had been withdrawn. The temperature rose in the afternoon to 102.6. The left ear was healed. From the right ear there was a slight discharge which later became purulent and continued for two weeks. The patient had no more high temperatures after this.

Recovery was retarded by the occurrence three days later of a duodenitis, which persisted for about two weeks. This was undoubtedly metastatic in character. The patient was examined, April 17, 1915. Both ears had healed, and the patient was well.

It is possible that, if blood cultures were taken, many cases of otitis would show a bacteremia, and would help verify the contention of bacteriologists that there is hardly an infection, no matter how slight and localized, but that, at some time during its course, bacteria are demonstrable in the general circulation.

120 West Eighty-Sixth Street.

* Read at a meeting of the New York Physicians Association, April 22, 1915.

FOREIGN BODY IN THE BLADDER

MAX BORNSTEIN, M.D., MILWAUKEE, WIS.

F. M., German, aged 19 years, machinist helper by trade, with poor general physical condition, and mentally below par, was given to frequent masturbation, and was of that type in which direct irritation of the urethral mucosa was necessary for complete sexual satisfaction. The chief complaint was general weakness and constant dribbling of urine.

Three years before, while he was masturbating with a bougie molded from a piece of chewing gum, it accidentally went beyond his reach, entered the bladder and caused the subsequent cystitis. The patient kept on working as usual, until three weeks before I saw him (Sept. 15, 1914), when incontinence set in and a constant gripping pain began to annoy him at the neck of his bladder. He had not worked since the latter train of symptoms came on, but sat about all day, listless and dull, in clothes reeking with the odor of foul urine. He was placed on urinary antiseptics, was later examined with a stone sound, which revealed a large movable stone resting on the base of the bladder.

Suprapubic cystotomy was done through an extraperitoneal incision. The bladder wall was thickened, and the mucosa deeply congested and coated with fine granular salt. The trigon was completely hidden by a stone the size and shape of a medium-sized lemon. A projection from the bottom of the stone extended into the prostatic urethra.

The patient was placed on general tonic treatment, and the bladder irrigated daily; but his general condition continued to grow worse until he finally succumbed seven weeks after operation.

1122 Walnut Street.

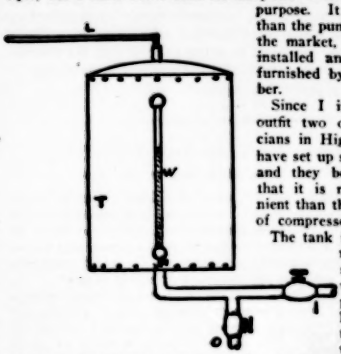
Japanese Obstetrics.—Even in ancient Japan the treatment of pregnant women received great attention. There was a special birth-chamber in which the woman remained three weeks before and three weeks after delivery. In the second half of pregnancy a belt was worn and by rubbing the abdomen the production of a correct presentation was attempted. During the birth and for eight days afterward a special birth stool was employed. After the middle of the eighteenth century obstetrics received a great impulse through Kagawa Shigen, at one time a rubber and acupuncturer. He published in 1765 an epoch-making work, San-ron, in which he attacked many erroneous Chinese views and collated many sound observations intermingled with *a priori* conclusions. The successors of Kagawa Shigen worthily continued these rational endeavors. The following particulars may be mentioned as having been known and practiced: the knee-elbow parturient attitude; care of perineum; double ligature of umbilical cord and section of same with scissors; powdered gall as a styptic; removal of the retained placenta by rubbing the abdomen and pulling on the cord; eventual instrumental extraction; nursing only after the fourth day.—Neuberger, History of Medicine.

New Instruments and Suggestions

APPARATUS FOR UTILIZING CITY WATER PRESSURE TO FURNISH COMPRESSED AIR FOR ATOMIZERS

H. J. Ullmann, M.D., Highland Park, Ill.

The apparatus for utilizing city water pressure to furnish compressed air for atomizers, nebulizers, etc., is old in principle, but I have never seen its adaption to this particular purpose. It is cheaper than the pump outfits on the market, and can be installed and all parts furnished by any plumber.



Apparatus for utilizing city water pressure to furnish compressed air for atomizers. *T*, galvanized iron tank, 10 or 15 gallons; *W*, water glass; *I*, inlet from city water line; *O*, outlet for draining tank; *L*, line to atomizers.

Since I installed my outfit two other physicians in Highland Park have set up similar ones, and they both tell me that it is more convenient than the pump type of compressor.

The tank is placed as near as possible to the water supply and the lead from the top run to any part of the room desired.

Water is run into the tank until it is from one-half to three-fourths full, depending on the pressure required. The intake is then shut and, in a 10-gallon tank, there will be enough air for the treatment of from three to five patients. When the air pressure falls too low for use, more water can be run in or the tank emptied and refilled, which takes less time than pumping by hand or with the small motors usually supplied with these outfits.

A BENZIDIN TABLET TEST FOR OCCULT BLOOD

Dudley Roberts, M.D., Brooklyn

It is essential that any test for occult blood be accurate, and important that it be simple in its technic. The benzidin test, in various modifications, has largely displaced tests previously used, and because of its accuracy and the comparative simplicity of the technic, occult blood testing has come into more general use. It has, however, not been found feasible to make up stock solutions of a benzidin in acetic acid that would keep long, and hydrogen peroxid, because of its instability, has led to frequent errors.

During the past year, after considerable experimenting, we have worked out an extremely satisfactory benzidin tablet, and in both private and hospital work we have come to use it to the exclusion of other tests.

This tablet triturate is composed of 1 part benzidin to 20 parts sodium perborate triturated with great care and made up into a 5-grain tablet. The tablet is moderately friable and is best dispensed in small tubes. The specimen to be tested, either a weak emulsion of the stool or the stomach contents or urine, is placed either in a small saucer, pus basin or porcelain dish in sufficient quantity to wet the tablet thoroughly, but not to entirely immerse it. A drop or two of glacial acetic acid on the tablet if blood be present gives rise to a more or less immediate change in the tablet to a greenish blue. Experience with its use gives a fairly accurate idea of the amount of occult blood present, depending on the extent and quickness of the color change. If the amount of blood is small, only the edge of the tablet may turn. The delicacy of the test is slightly less than the benzidin-acetic-acid-peroxid test but has been found amply delicate for practical purposes. There is some danger in too delicate a test, and this has been purposely avoided. Such is the simplicity of this tablet test for occult blood that a nurse or intelligent patient may watch the appearance or disappearance of occult blood without laboratory apparatus of any kind, with merely a small dish, the handle of a spoon to make a thin emulsion, a tablet and a small vial of acetic acid.

84 Remsen Street.

A SIMPLE SUBSTITUTE FOR EMPYEMA TUBE

A. Merrill Miller, M.D., Danville, Ill.

The so-called empyema tube having a flat flange on either end has found favor with many surgeons because it is self-retaining.

As these tubes are made the end flanges are fastened to the straight tube by vulcanizing. Due to being imperfectly secured, these sometimes become detached and one has the equivalent of a straight tube.

In place of the tube furnished by instrument houses, I have used with success a soft rubber spool—cast on *one* piece—known as "bunion-right" or "toe-right." This article may be purchased in any shoe store or from a retail druggist. It is simple, answers every purpose of the empyema tube and has the advantage of always being at hand.

508 The Temple.

COMPRESSION RING FOR HEMOSTASIS

Frank P. Corrigan, M.D., Cleveland
Associate Surgeon to St. Alexis Hospital

The device here illustrated is a time and trouble saver in operations for the removal of small tumors of the scalp, and other localities, under local anesthesia.

One annoying feature that is obviated is the pain caused by application of artery forceps.

This occurs even when the tissues have been so infiltrated that the actual cutting is painless.

Compression ring for hemostasis.

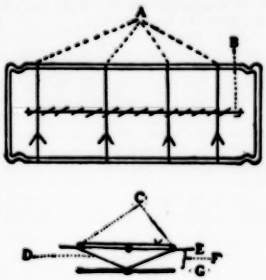
The semiflexible ring here shown, made of soft lead or solder, gives a perfectly satisfactory hemostasis without any loss of time, and tends to prevent diffusion and absorption of the local anesthetic used, acting in this connection much like a tourniquet.

The technic of application is simple. The ring should be pressed firmly down with both hands by the assistant after it has been slightly conformed to the surface surrounding the growth that is to be removed. It is especially satisfactory for use on the scalp because of the counterpressure furnished by the firm skull beneath.

DEVICE FOR FIGURE-OF-EIGHT SUTURES

ALFRED HULL CLARK, M.D., BUFFALO

Figure of eight silkworm-gut sutures, used to reinforce the fascial catgut stitch, may be tied over a wire frame longer than the skin incision and as wide as the distance between the skin holes of any stitch. This wire frame allows inspection of the line of skin sutures and the treatment of any irregularity in its healing, prevents the cutting of the skin by the silkworm-gut, obviates any pressure on the skin incision, if it be held with skin clamps, and gives an even pull on the fascia without pressure on the skin other than the slight and well-distributed pressure of the frame.



Above, diagram of frame, one-third size. *A*, silkworm-gut; *B*, skin incision. Below, diagram of skin, fascia and frame in cross section, one-third size. *C*, frame; *D*, figure-of-eight silkworm-gut; *E*, skin; *F*, fat; *G*, fascia.

The frame is made of No. 35 brass wire, nickeled, is 2½ inches wide and varies in length to suit the skin incision. Those used by Dr. Earl P. Lothrop, with whom I work, vary from 3¼ to 7½ inches in length. The accompanying diagram illustrates the frame and its use. The idea was adapted from Rovsing's glass plate.

153 Delaware Avenue.

ISOLATION OF BACILLUS TUBERCULOSIS FROM SPUTUM BY THE METHOD OF PETROFF*

O. W. H. MITCHELL, M.D., AND R. R. SIMMONS, A. M.,
SYRACUSE, N. Y.

Recently Petroff[1] described a method for the isolation of the tubercle bacillus from sputum and feces. It gave highly satisfactory results, particularly when isolation from sputum was attempted. With sixty-nine specimens of known tuberculous sputums he isolated the organism in every instance and, with a little different technic, he was successful in isolating *Bacillus tuberculosis* from feces nineteen times out of thirty-two attempts.

The method will not be described in detail as it will be best for the reader, if the method is to be employed, to refer to the original article. By using an alkaline solution to which *B. tuberculosis* is especially resistant and employing gentian violet, which inhibits the growth of many organisms, Petroff succeeded in perfecting a method for tubercle bacillus isolation which is simple, economical and trustworthy, especially when the isolation is to be made from sputum. In brief the method is as follows:

Digest the sputum in sodium hydroxid solution in the incubator at 37.5 C. for from twenty to thirty minutes. Neutralize to litmus with normal hydrochloric acid and centrifugalize. Spread several loops of the sediment on beef-infusion-glycerin-egg medium to which has been added gentian violet in the strength of 1:10,000. Petroff used fresh sputum, while we have used sputum from one to four days old.

Attempts have been made in this laboratory to isolate the tubercle bacillus on the medium without gentian violet. This method was used twenty-three times, but because of contamination only once was the tubercle bacillus grown in pure culture. Several times growth was noted by making smears but, excepting one culture, contamination was marked. Petroff was more successful and without gentian violet he isolated *B. tuberculosis* five times out of twenty trials.

Gentian violet was added and with thirty-five specimens our results were as follows: isolation and good growth, twenty-eight; contamination, six; no growth, one. Growth was observed in the different cultures from the ninth to the fifteenth day. Later development proved that the observation of early growth was correct. As the failures occurred at the beginning of the work we are inclined to consider them due to faulty technic rather than to defects in the method. All specimens of sputum employed in this work were shown by smears to be positive for *B. tuberculosis*.

Such a method which makes animal inoculation unnecessary and can be so simply performed commends itself for wide application, especially in the teaching laboratory.

* From the Bacteriological Laboratory, College of Medicine, Syracuse University.

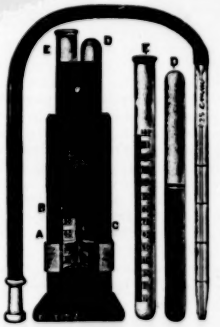
1. Petroff: Jour. Exper. Med., 1915, xxi, No. 1, p. 38.

A NEW POCKET COLORIMETER*

THEODORE KUTTNER, M.D., NEW YORK

In making analyses of blood and other physiologic fluids, it is often desirable to employ small quantities of the material to be tested, provided accurate microchemical methods with suitable instruments are available. Several advantages would result, namely, first, the ability to use less reagent for the test; second, the saving of time and labor; third, the probability of more often obtaining such material, and finally the use of less costly apparatus.

The object of this communication is to describe an instrument for use in quantitatively estimating small amounts of a constituent in solution by its color reaction. Before proceeding with the description, I wish to state that the same calibrated and color tube employed in the Sahli-Gower hemoglobinometer has been adopted for this instrument. While the Sahli allows both tubes to be viewed at full length, the new instrument shows only a small part of the tubes when making color comparison. This facilitates the color reading and is less fatiguing to the eye. An additional feature is a prism (*A*) to be described, which has the effect of causing the contents of the tubes to approach each other more closely, thereby accomplishing greater accuracy in comparing the colors.



A pocket colorimeter.

The instrument (now being made by E. Leitz, New York) consists of a closed upright box, the dimensions of which are about 2.5 cm. in width by 8.5 cm. in height, being therefore smaller in length and width than the Sahli instrument. At the top are two openings, one for the color tube, *D*, and the other for the calibrated tube, *E*. Near the lower front part of the instrument is a window provided with a small prism, *A* (Helmholtz double plates), above mentioned, serving the purpose of having the colors of both tubes appear close together, forming a continuous color band. The prism is easily removed for cleansing and can be quickly readjusted. A sliding door, *B*, which can be raised and lowered, protects the prism from dust and injury. The color standard and calibrated tube are separated from each other by a partition, *C*, which prevents light from being reflected from one tube to the other.

* From the Pathological Laboratory, Department of Physiological Chemistry, Mt. Sinai Hospital.

A few suggestive points regarding technic may be helpful. The standard color tube is inserted into one of the two openings, for instance, *D*, and the sliding door raised until the window is exposed. The calibrated tube with its contents ready to be estimated is inserted into the other opening, *E*, and the diluting fluid added drop by drop and mixed until the color exactly matches that of the standard, that is, when the color as seen at one half of the window is of exactly the same shade as the other half. When this is accomplished, the sliding door is raised high enough to enable one to observe the height which the fluid has attained. The calibrated tube is graduated up to 140, and in making readings, in order to obtain close results, it is best to make a reading at that point at which the color just matches the standard and then slowly continuing the dilution and taking other readings, accept as the final figure the one just previous to the point at which the color became fainter. The instrument should be held at a distance convenient to the eyes of the observer.

AN IMPROVED INFLATABLE FACE CUSHION

Raymond C. Coburn, M.D., New York

An essential requisite in the administration of nitrous oxid is that the face cushion form an air-tight fitting with the patient's face. There is a decided tendency, when an inflatable rubber cushion is used, for the patient's expirations and saliva to moisten the rubber, so that the cushion slips off the solid face piece, especially when a metal face piece is used, so that the solid face piece rests on the patient's cheek, instead of on the rubber cushion. This malposition permits the nitrous oxid to escape and air to be inspired, thus interfering with a proper and successful administration of nitrous oxid.

An improved inflatable face cushion.

To obviate this difficulty, I have had a wire inserted *within* the inflatable rubber cushion, as shown in the illustration. This wire insert prevents the cushion from becoming displaced and from slipping out of its proper position. The wire is sufficiently pliable so that it may be changed in form and size, as may be needful.

AN IMPROVED HEMORRHOID OPERATION

William Lee Secor, A.M., M.D., Kerrville, Texas

The three common methods of operating on hemorrhoids—clamp and cautery, ligature, and suture—each leaves much to be desired before the ideal is reached.

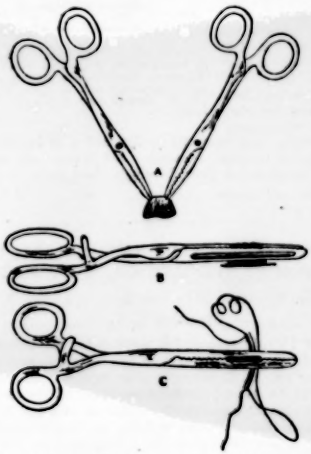
Of the three methods, the one which is freest from postoperative pain and secondary hemorrhage, which closes the mucosa and leaves the rectum most nearly normal, is the suture method.

The best technic for this procedure is to sterilize the field with 3 per cent. iodin solution, grasp a pile at its tip with a hemostat, and draw it down so that another hemostat may be placed at the top of the pile. With the pile on the stretch by the two hemostats, a narrow-bladed clamp (Ferguson's) is placed on the base of the tumor, and the tissue outside of the clamp cut away. Then with a curved round-pointed needle and No. 2 iodized catgut, an over-and-over stitch is made around the blades of the clamp, to cover in the entire raw surface. The clamp is loosened and slipped out of the loops of the stitch, the stitch is drawn up tight, and the two ends are tied together.

During the past ten years I have done this operation many times with perfect satisfaction, except for one point of danger which from my own experience seems more theoretical than practical, but nevertheless exists. In placing the stitch around the clamp, the needle may carry infection into some of the large veins of this area, giving rise to local or remote abscess formation. The iodin method of sterilization reduces the chance of this accident to a minimum.

In order to avoid even this small element of danger in a hemorrhoid operation, I have devised the following technic:

The field is painted thoroughly with 3 per cent. iodin solution. A hemorrhoidal tumor is picked up and put on tension



Procedure of the operation: *A*, grasping of pile with two hemostats; *B*, clamping; *C*, suturing.

by two hemostats as in the operation described above. Then its base is clamped with a special clamp having a slit in each blade similar to the Mayo-Moynihan stomach clamps. The tissue outside of the clamp in the grasp of the hemostats is cut away, then a No. 2 catgut suture with a needle at each end is used in making a back-and-forth shoemaker's stitch through the slit in the blades, the clamp is removed, and the stitch is tied.

In this operation, half of the split blade of the clamp crushes the tissue and vessels back of the suture line, and no infective material will travel from the stitch holes through the veins.

The mucosa is nicely approximated, and the firm stitching insures against any hemorrhage. A small strip of gauze covered with sterile petrolatum is left in the rectum for twenty-four hours. There is little pain. The bowels are moved on the fourth day, and the patient leaves the hospital in a week.

This operation done under novocain—sacral anesthesia—leaves little to be desired as to safety, simplicity and end-results.

Special Article

PRACTICAL PHARMACOLOGY *

(Continued from page 169)

XXVIII

THE HEAVY METALS AND THEIR SALTS—(Continued)

MERCURY

When the soluble mercuric salts, such as the chlorid, are taken they may be brought into more intimate contact with the tissues than the insoluble salts, such as calomel. This is because the solutions of the mercurials permit the formation of the albuminate, which is soluble in excess of albumin, such as exists in the tissue fluids.

The solubility of the mercurial compound formed, and its toxicity for all cells with which it comes into contact permits it to exert its toxic action not only on the mucous membrane of the alimentary tract at the time it is swallowed, but also on the cells of the renal tubules and of the intestine which participate in the excretion of the metal.

It is commonly stated that a metallic taste and a burning sensation in the mouth and throat are the first symptoms observed after a toxic dose of mercuric chlorid has been swallowed. Animals, however, appear to suffer no discomfort after the introduction of mercuric chlorid through a stomach-tube before the onset of nausea, which is promptly followed by emesis. The vomitus may be tinged with blood within a few minutes after the administration of an excessive dose, showing the rapidity of the onset of the corrosive action. The vomiting may be almost incessant or there may be intervals during which an animal gives little sign of actual discomfort. A cat vomited fourteen minutes after the administration through a stomach tube of a 1:500 solution containing an amount of the mercuric chlorid corresponding to about 2 gm. (30 grains) for a man. Another cat received about one tenth as much in a 1:5,000 solution and though this amount corresponds to an almost certainly fatal dose in man the animal did not vomit or exhibit any symptoms of discomfort for more than forty-eight hours. In man, the onset of nausea and vomiting may be sufficiently delayed to permit notable amounts of the poison to pass into the duodenum where part of it is absorbed. The remainder being carried into the large intestine causes diarrhea in some cases, but in others this result is delayed for twenty-four hours, that is, until the irritant action of the metal is exerted on the intestinal cells during excretion. The evacuations often resemble those seen in arsenic poisoning, and contain blood and shreds of desquamated intestinal epithelium.

Excessive doses of mercuric chlorid may cause profound collapse through the severity of the gastro-intestinal action. Death may result in a few hours, but the patient usually lives from three to eight days after a fatal dose has been taken, and death may then be due to collapse incidental to the action on the central nervous system and to gastro-intestinal and renal effects. There is little direct action on the heart and central nervous system in many cases, and consciousness is commonly retained in acute poisoning until shortly before death, when uremic symptoms with coma result.

Aside from the salivation resulting from the nausea that comes on soon after the poison has been taken, there is sometimes an intense activity of the salivary glands. The saliva containing mercury, which is irritant, may occasion excoriations and deep ulcerations extending even into the bone of the jaw unless care is given to the mouth. A 2 per cent. solution of potassium chlorate is recommended as a mouth-wash in such cases.

The salivation and soreness of the gums and mouth are important as they are among the earliest of the symptoms commonly observed in chronic mercurial poisoning when mercury is taken over prolonged periods, or when persons are exposed to its action as in the trades in which it is used (mirror makers).

In severe mercurial poisoning the colon and cecum are commonly the seat of ulceration caused by the direct action of the salt before its absorption, or more commonly, during excretion. The small intestine suffers comparatively little, probably because the poison does not remain in it long, but is either absorbed or passed on into the cecum.

The urine may be increased for a time and later completely suppressed, partly through the action of the mercury on the epithelium of the tubules, partly through the circulatory changes induced by the watery diarrhea. This by withdrawing fluid from the blood increases its viscosity, which with the lowered blood pressure causes further interference with the renal secretion.

Attention has been called to the necessity for preventing diarrhea when calomel is administered for its diuretic action, and the reasons for this have been explained. It is in keeping with that explanation that when mercurial poisoning is attended with severe gastro-intestinal disturbances with watery diarrhea, there should be less nephritis than when poisoning of equal severity is accompanied with comparatively little diarrhea.

The various skin lesions observed during chronic mercurial poisoning are due to the irritation caused during excretion in the sweat.

In chronic poisoning in long-standing cases, not in those induced by the therapeutic use of mercury, muscular tremors of central origin may occur, and a condition of erethism, or increased excitability of certain parts of the central nervous system is described. This erethism is characterized by irritability and alterations in the disposition.

The milder forms of chronic mercurial poisoning are induced when any of the mercurial is given over a prolonged period in the treatment of syphilis, and, indeed, the beginning of these symptoms serves as a guide in limiting the administration. More severe symptoms occur among workers in trades in which mercury is used constantly. The continuous administration of calomel is said to give rise to severe stomatitis more frequently than is the case with mercuric chlorid and other soluble salts of mercury, because it is impossible to control the absorption with any degree of precision in the case of calomel. Undue absorption thus occurs at times, especially when opium is administered to control the diarrhea which calomel causes otherwise.

* This is the twenty-eighth of a series of articles on useful drugs — on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

Acute fatal poisoning with mercuric chlorid has become quite common of late, owing to carelessness or the deliberate use with suicidal intent of the "antiseptic tablets," each of which contains about 7 grains of the poison.

There is little doubt that the widespread use of these tablets in solution for preventing conception is responsible for their being present in many households, inviting mistakes and affording opportunities for self-destruction.

Various ways have been suggested by which mistakes with the tablets will be rendered impossible, thus, it has been recommended that they be made of cylindrical shape, or that they be colored distinctly with indigo or ultramarine blue. The distinctive shape is preferable, since mistakes are often alleged to be due to taking tablets in the dark. The tablets are threaded together like beads by one manufacturer.

Fatal poisoning also results occasionally from the use of solutions of mercuric chlorid as a wash for large wounds and body cavities, and it should be remembered that absorption may take place from any mucus or denuded surface. Fatal poisoning has even followed the local application of the mercurial ointment, though this is extremely rare. It is even said that the oral administration of calomel may be followed by absorption and the typical corrosive action of mercuric chlorid, but this must also be rare.

The stomach should be emptied as promptly as possible after a poisonous dose of mercuric chlorid has been swallowed. The stomach tube is preferable for this purpose,[1] for while emesis occurs in the large majority of cases from the action of the drug, this is not sufficiently prompt to prevent the absorption of notable amounts, or to prevent still larger amounts from passing into the duodenum.

Egg-white, milk or other readily available form of protein should be administered immediately but not too freely, even before the stomach-tube is passed, and again after the stomach has been emptied as thoroughly as possible. The portion administered at first is intended to precipitate the poison and stop its further action on the stomach, and that administered after the stomach has been washed is for the purpose of protecting the mucous surface and precipitating any mercuric chlorid that may have escaped precipitation in the first case.

Immediately after washing the stomach, 30 gm. (1 ounce) of magnesium sulphate should be dissolved in 500 c.c. (1 pint) of water and administered in order to dilute any of the poison that passes into the duodenum and to hasten its evacuation in the feces. Egg-white or milk may be added to this solution in order to precipitate any mercuric chlorid that may exist in the alimentary tract, and egg-white or milk should be administered from time to time for the same purpose.

One cannot be certain that the most energetic treatment will suffice to prevent the absorption of a poisonous dose of the salt, hence attention should be given to its elimination and to the treatment of symptoms that may arise. Since mercury is eliminated by all of the channels of excretion, it would appear to be logical to promote all the secretions so far as possible, and diaphoretics and diuretics should be used freely.

1. The danger of perforating the stomach, while attempting to pass the stomach-tube after corrosives have been swallowed, has probably been much exaggerated. Of course, one should exercise caution in passing the tube under such conditions.

Attention has been called in previous articles to the copious diuresis that may be induced by the intravenous injection of large amounts of a 2 per cent. solution of sodium sulphate. While this procedure is not justified by the mere suspicion that a toxic dose of mercuric chlorid may have been absorbed, it would probably prove beneficial if used early in the course of poisoning after absorption has taken place and before severe nephritis has developed. We are not aware of any case of mercurial poisoning having been so treated, but when a fatal outcome appears almost certain in the presence of the usual methods, it would at least seem justifiable to employ any means of hastening the elimination that does not jeopardize the patient's welfare.

The diarrhea and its attendant pain that result during the excretion of mercury may require the administration of opium, but the evacuations must not be checked altogether since that would prevent the elimination of the poison.

It is often asserted that potassium iodid facilitates the elimination of mercury from the body but no satisfactory evidence exists that it exerts any marked effect in this way.

THERAPEUTIC USES

The disinfectant, diuretic and cathartic actions of mercury have been discussed in other articles of this series. Its use in syphilis remains to be considered.

In this disease its value has been established beyond question. Its well-known disadvantages and the overshadowing literature of salvarsan, however, together with the sensational introduction of the latter as a cure for syphilis have tended of late to create the impression that mercury is of only secondary importance. In truth mercury is indispensable still, even though there are some cases of syphilis which may possibly yield to arsenical treatment, for mercurial treatment becomes necessary in the larger proportion of cases. It seems probable that it will be used more and more in conjunction with arsenic when the technic of their combined use is perfected.

Preference has been given at one time or another to nearly every one of the better-known salts of mercury, including those that have been introduced in the effort to overcome some of the disadvantages of the other mercurials. The value of mercury in the treatment of syphilis depends on getting enough of it into the circulation to destroy (or to enable the body to destroy) the *Treponema pallidum*, the causative organism. Since mercury in sufficient concentration is toxic to all of the cells of the human body with which it comes in contact, it follows that whatever method of administration is chosen the toxic effects of the metal must be exerted at the points of absorption and elimination. It is therefore apparently impossible to secure the therapeutic action of mercury without at the same time subjecting the patient to some of its disagreeable side actions.

The literature dealing with the treatment of syphilis and the best methods of administering mercury is extensive, but the general practitioner will usually depend on oral administration despite its many disadvantages, until better means of administering the remedy are perfected. Many specialists prefer the intramuscular injection of an insoluble salt such as the salicylate, as a sufficient quantity can be given at two injections to produce an influence which will last a week, thus saving much time. This method, however,

has the great disadvantage of resulting in a variable rate of absorption, so that the dosage cannot be satisfactorily regulated. The pain attending the injection is said to be less severe but to last longer than that following the injection of mercuric chlorid. A few specialists prefer the mercuric chlorid for intramuscular injection. It has the advantage of insuring rapid absorption with satisfactory regulation of the dosage, but it causes severe pain and the injections must be made every day.

Inunction is practiced in some institutions where the services of trained attendants are available. The ointment of mercury is rubbed into the various parts of the body successively. It is extremely untidy and it gives rise to much discomfort.

Mercurial vapor baths would appear to have decided advantages were it possible to regulate the dosage satisfactorily.

Calomel, mercury and chalk, mass of mercury, and the "proto" or yellow iodid are insoluble forms of mercury that may be administered by the mouth in pills or capsules. They all cause diarrhea, usually necessitating the use of opium to secure sufficient absorption, and they have the disadvantage of being variable in absorbability even then.

Mercuric chlorid, or red mercuric iodid may be given in solution. Mercuric chlorid and potassium iodid are commonly prescribed together, the soluble double salt of mercury and potassium iodid being formed.

When arsenic is used in the treatment of syphilis an effort is made to destroy all of the spirochetes in the blood with one dose. It would therefore seem logical to use the largest doses of mercury that the patient can stand in order that the micro-organisms may be destroyed as rapidly as possible, but the toxicity of mercury for the host and its many side actions are so important that they must be taken into consideration in the method of treatment. A lack of agreement also exists concerning the best methods of procedure with the various mercurials.

The administration of mercurials during the latter months of pregnancy may induce abortion, or the newborn may suffer from chronic mercurial poisoning. The simultaneous occurrence of syphilis and tuberculosis offers additional difficulties in the administration of mercury but it does not wholly contraindicate its use.

Mercurial ointment is also used for destroying parasites, especially body lice, but there are other methods that are equally effective and more cleanly. A solution of mercuric chlorid, 1:500 in vinegar, diluted acetic acid or diluted alcohol may be applied cautiously; but absorption may occur if too much of the solution is used, hence not more than one fluidounce of such solution should be applied during a day.

Ointment of ammoniated mercury is antiseptic and a local stimulant; it is used to excite a healthy inflammatory reaction in psoriasis, and it is also applied to areas of suppurating dermatitis.

DOSAGE

The single dose of the various mercurials varies widely with the method employed. Larger single doses of the salicylate are given when injections are made intramuscularly twice a week than of the mercuric chlorid when used daily. On the other hand, it is obvious that the amount of calomel or one of the other insoluble mercurials that will be required to induce a given effect will vary considerably with the measures taken to prevent its rapid removal by purgation. It is probable that the amount of mercury necessary to be absorbed in a given length of time to produce the desired therapeutic effects, that is, the destruction of the spirochete, does not vary nearly so widely as the total amount which may need to be administered.

The oral dose of mercuric chlorid (corrosive sublimate) is 0.002 to 0.01 gm. (1/30 to 1/6 grain) in pill or preferably in dilute solution. Attention is again called to the much greater irritation caused by concentrated solutions than by dilute ones containing equal amounts of irritant salts. The maximum oral daily dose is 0.06 gm. (1 grain). The daily dose by intramuscular injection should not exceed 0.01 gm. (1/6 grain).

Solutions of from 1:1,000 to 1:2,000 are used to excite dermatitis and exfoliation; care should be taken to avoid absorption of large amounts, hence such solutions should be used only with caution and they should be discarded should there be evidences of absorption, such as salivation or a metallic taste in the mouth.

It is difficult to state the dose of calomel in exact terms with such strict limitations as in the case of the mercuric chlorid. The administration is regulated rather by the symptoms induced and evidence of absorption than by mere figures. The single dose varies from 0.06 to 0.12 gm. (1 to 2 grains) and from 3 to 5 grains daily until slight mercurialism is induced when it is employed in the treatment of syphilis.

Soluble iodids, such as sodium or potassium iodid, are contraindicated during the administration of calomel as they react with it to form metallic mercury and mercuric iodid.

The yellow mercurous iodid, also called the green iodid, or the protiodid, is little used except for the treatment of syphilis; it has less tendency than calomel to cause diarrhea. It is best administered in pill form after meals in doses of 0.015 gm. (1/4 grain) three times daily, increasing gradually by 0.008 gm. (1/8 grain) till the symptoms indicate that the limits of tolerance are being approached. The appearance of salivation, diarrhea and pain is the signal for interrupting the administration or diminishing the dose.

Red mercuric iodid is given by the mouth in doses of 0.003 gm. (1/20 grain) three times daily. It is commonly prescribed in a liquid form by directing mercuric chlorid and potassium or sodium iodid in solution somewhat as follows:

℞		Gm. or c.c.	
	Hydrargyri chloridi corrosivi.....	0.06	grains i
	Potassii iodidi.....	6.00	ʒ ss
	Aquæ	100.00	℥ iii

Red mercuric iodid may be injected intramuscularly, in a solution in a bland fixed oil containing from 0.2 to 1 per cent. The daily intramuscular dose is about 0.005 gm. (1/10 grain) or 1 c.c. (15 minims) of a 0.5 per cent. solution.

Mercuric salicylate has come into use largely for intramuscular injection suspended in liquid paraffin or other oleaginous menstruum. Of a 10 per cent. suspension, containing 0.06 gm. (1 grain) of mercuric salicylate, 0.6 cc. (10 minims) is injected intramuscularly about twice a week or once in four days.

Mercury with chalk is given in doses about equal to those in which calomel is used. The action of mercury with chalk, the mass and the ointment, containing the metal in fine division, is quite different

from that of the metal in mass, since the finely divided globules of mercury are partially oxidized.

Metallic mercury was formerly administered in substance in large doses, but it is seldom given now in the pure form.*

DEMULCENTS, EMOLLIENTS AND OTHER PROTECTIVES

The word "demulcent" is derived from "demulceo" meaning "to smooth"; the word "emollient" from "emollio" meaning "to soften." Mucous membranes rarely require softening though they sometimes require agents to render their surfaces smoother. When, however, an inflamed skin becomes hard it requires softening, hence we speak of applying demulcents to mucous membranes and emollients to the skin, the same agent usually being both demulcent and emollient. Petrolatum is used for both purposes, but when used internally it is commonly spoken of as a lubricant for the intestinal tract.

Cushny states that the number of demulcents, emollients and astringents in common use might be curtailed considerably without loss to therapeutic practice, and the physician will find that "Useful Drugs" contains all that he needs of this group.

Acacia, tragacanth and other gums are colloidal substances that can be dissolved in water or made to absorb many times their weight of it, forming mucilages that serve to protect mucous membranes against irritants of various kinds. They form a coating that protects the surface mechanically against solid particles, and they retard the movement of liquids that are incorporated with them so that absorption and penetration into the mucous membranes are delayed.

Poisons, such as strychnin, are less active when dissolved in solutions of colloids than when dissolved in water, the slower absorption from the former permitting of the simultaneous excretion of a portion of the poison. Sweet and sour substances have less taste when dissolved in solutions of colloids than when dissolved in water, because of their slower penetration into the organs of taste in the tongue.

That such dissolved substances are more slowly absorbed, also explains the protective action of demulcents against soluble poisons in the gastro-intestinal tract, but, on the other hand, when such colloid solutions remain too long in contact with inflamed and infected surfaces they offer opportunities for bacteria to develop. This does not apply with so much force to the mouth, nose and throat, in which the natural secretions and frequent washing suffice to remove bacteria, but to the gastro-intestinal tract, where the rapid multiplication of putrefactive organisms together with the delayed digestion of food and absorption of the products of digestion may result in further injury to the inflamed mucous membranes.

Demulcents may be added to solutions of irritant drugs, such as hydrated chloral, to lessen or prevent gastric irritation, thus avoiding emesis and permitting the drug to be absorbed. For this reason they are sometimes added to nutrient enemas, as enemas are prone to set up peristalsis, thus causing their expulsion. The colloids retard or prevent this, affording time for the absorption of the nutriment.

It is sometimes difficult to relieve thirst when the stomach has become so irritable that even small amounts of water are rejected. Demulcents may be added to water in such cases, and when large amounts of water are to be administered by the mouth to induce diuresis, the use of demulcents and flavoring prevents nausea and facilitates the passage of water into the duodenum, where it is absorbed. Albumin water, made by adding the white of an egg to a glass of water with a little lemon juice or barley water, serves the double purpose of introducing water and nitrogenous or carbohydrate food, though the food value may be slight.

Demulcents are also used to allay the irritation of the gastro-intestinal tract in poisoning with such metallic salts as those of mercury. The possibility of bacterial infection should be borne in mind and in such cases the combination of an antiseptic and colloid is probably preferable. Glycerite of starch serves as a demulcent, but is digested without becoming a nidus for the growth of bacteria. The objection to the use of demulcents in the treatment of diarrhea is the same as in other inflammatory conditions of the intestine. This applies with even greater force when it is evident that pathogenic bacteria are already doing harm. Petrolatum would seem to have a special field of usefulness in such cases, at least on theoretic grounds, but protectives, such as bismuth salts, that are also astringent and antiseptic, are usually preferred for use in combination with the mucilaginous demulcents.

The skin is kept soft and pliable under normal conditions by its natural secretions, but there are innumerable ways in which the pliability is destroyed and it is rendered hard, the hardening being followed by cracking and greater or less irritation. The hands especially are subject to innumerable minor injurious influences such as frequent washing with alkali soap; frequent wetting and drying; the action of cold winds; of various chemicals, including acids and alkalies in various trades; of tannin in vegetables in domestic service; of dust and ashes. Probably the majority of occupations involve a certain degree of injury to the skin of the hands, and while this is not so serious as to demand medical treatment, the frequent use of harmless demulcents adds much to the comfort of many persons.

All bland oils are emollient, but they become rancid on exposure to the air, and ordinarily they are inconvenient to use on the hands unless they are thoroughly rubbed into the skin. Even this may be troublesome; petrolatum for this purpose is quite inconvenient, though commonly used. Many people find glycerin irritant, especially women and children who have sensitive skin. Others find it a most convenient emollient when diluted with at least an equal volume of water. It is applied after washing and wiping the hands but while they are moist. A mixture that has been found useful consists of equal parts, by measure, of glycerin, water and solution of hydrogen peroxid. Rose water in equal amount may be substituted for the water or a small amount of benzoin or other flavoring may be added.

Among the emollients that do not require detailed discussion, various ointment bases may be mentioned. Lard becomes rancid, hence the Pharmacopeia directs that it shall be treated with benzoin, which prevents rancidity. Lanolin, or hydrous wool fat, does not become rancid, but it is not pleasant to use.

Wild reported to the therapeutic research committee of the British Medical Association recently on the

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when the series is published in book form.

availability of certain ointment bases in common use. While the subject is not fully understood, he holds that the fats such as lanolin and lard are absorbed more readily than petrolatum, but that we have little knowledge of the rates at which incorporated substances leave these substances to go into the tissues.

While this has little bearing on the use of ointment bases as demulcents it is obviously important when the use of ointments as a means of applying drugs for their systemic action is considered.

The melting point of the ointment is held to be of first importance, gradual melting being desired, hence Wild prefers a mixture of ointment bases with different melting points.

Certain other mechanical protectives serve the same purpose as the mucilaginous and oily demulcents and emollients; for example, the insoluble salts of bismuth, which are usually taken in a fine powder suspended in mucilage, form a thin layer on the mucous membrane of the stomach and intestine. Dusting powders, such as starch, lycopodium, talcum and boric acid serve much the same purpose on the inflamed skin. The salts of bismuth are usually classified as astringents, among which they will be mentioned later. They do not appreciably dissolve in the gastro-intestinal tract as a rule, but pass through it unchanged exerting their protective action throughout its length.

The subnitrate has long been the most popular of the salts of bismuth, but its popularity over the subcarbonate is apparently due to force of habit, for their beneficial actions are similar, while the subcarbonate does not cause poisoning as the subnitrate does occasionally. This poisoning is due in part to the absorption of nitrites resulting from the decomposition of large doses of the subnitrate by bacteria, in part to the systemic action of the metal bismuth.

Bastedo administered bismuth subnitrate to dogs and after several hours found the bismuth in a flocculent state coating the mucous membrane very uniformly as far as the ileocecal valve. He also administered bismuth subnitrate with a test breakfast to a patient and at the end of the hour found the salt in a flocculent state and uniformly mixed with the extracted stomach contents. It separated slowly from the food.

Cannon introduced the practice of administering the salts of bismuth and observing their progress through the alimentary tract by means of the fluoroscope, as an index of gastro-intestinal movements. The subcarbonate or the subchlorid is to be preferred to the subnitrate for this purpose because of the danger of using such large amounts of the latter as would be required (60 gm. or 2 ounces).

Bismuth salts are partly converted into the sulphid in the colon and this may act as an irritant; like the sulphids of many other metals it colors the stools black.

The soluble salts of bismuth, such as bismuth and ammonium citrate, are apparently wholly superfluous, as the soluble salts are converted into insoluble ones in the gastro-intestinal tract, and absorption is never desired. Linseed or flaxseed is used in the form of an infusion as a demulcent. The mucilaginous outer wall of the seed swells or dissolves in water to a pleasant tasting mucilage. The crushed or ground linseed is used in the form of cataplasms as an emollient and, because of its property of retaining heat, for the relief of inflammatory conditions generally.

The insoluble salts of zinc, more particularly the oxid and stearate, are used externally in the form of a dusting powder or an ointment to protect the skin and to allay irritation.

To absorb the discharge in eczematous conditions or to check excessive perspiration, mixtures of equal parts of zinc oxid or zinc stearate with starch and boric acid or one of the insoluble bismuth salts may be used. The composition of such dusting powders should be varied to meet the particular indications or needs.

THERAPEUTIC USES

The therapeutic uses of demulcents are indicated to a large extent by the preceding discussion. Attention has been called to the fact that they retard the absorption of fluids with which they are mixed, and they may check diarrhea by lessening the irritation of the intestinal mucous membrane, thereby diminishing peristalsis and prolonging the time allowed for absorption of fluid so that less passes into the large intestine. The fluid may also be retained so tenaciously by the demulcent, as in the case of compound licorice powder, that the bulk of the intestinal contents is increased and normal peristalsis is stimulated. In this case the laxative action is due partly to the irritation of the mucous membrane caused by the hydrogen sulphid formed in the intestine from the sulphur of the powder.

Demulcents are commonly used for the relief of cough and sore throat. It sometimes happens that the continued use of demulcent lozenges causes the tongue to become coated with insoluble matter from the lozenges, and it will be found advisable in such cases to use a gargle or spray for the throat and to wash the mouth with solution of hydrogen peroxid.

The salts of bismuth are used to allay vomiting from gastric irritation and to check diarrhea arising from irritation due to decomposing food; to protect the gastric mucous membrane in hyperacidity and in gastric ulcer; in gastro-intestinal catarrh and in ulcerative enteritis.

Bismuth subnitrate and subcarbonate are used externally for ulcers and suppurating wounds. A paste made of bismuth with petrolatum has long been used in treating old sinuses and fistulous tracts. It is injected once a week in cases of chronic tuberculous cavities but not in acute conditions. Poisoning has resulted from its use in this way and the use of the paste should be discontinued on the appearance of symptoms indicating that absorption is taking place. These symptoms include headache, nausea, stomatitis, with occasionally a blue line on the gums. In such cases the cavities should be irrigated thoroughly with warm olive oil and filled with the oil, which is allowed to remain for twenty-four hours, after which the washing with the oil is to be repeated daily until symptoms of poisoning abate.

Dusting powders including the insoluble salts of bismuth, starch, boric acid, zinc oxid and zinc stearate are used to protect inflamed skin, and collodion and oiled silk are used to exclude the air from inflamed surfaces. Flexible collodion affords an impervious covering which may be used on cuts and small non-infected wounds.

Lime liniment is specially used in the treatment of burns, promptly relieving the pain, but it has the great disadvantage of being uncleanly and difficult to remove and of permitting the development of bacteria beneath it.*

(*To be continued*)

* Owing to lack of space the materia medica of this group is omitted from THE JOURNAL. It will appear when this series is published in book form.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

Contributors, subscribers and readers will find important information on the second advertising page following the reading-matter

SATURDAY, JULY 17, 1915

DIETOTHERAPY UNDER WAR CONDITIONS

In a recent issue of The Journal,[1] the way was discussed in which the European war has changed the supply of readily available foods, and brought about an enforced movement toward a partial vegetarian regimen, in place of the more extensive use of meats, eggs, butter and wheat products. In a minor degree these changes, being the subject of governmental regulation and enforcement, place new restrictions on the dietary of the sick. Those who depend on a more or less strict ration may be affected in both an economic and a mandatory way. The patients concerned belong chiefly to the categories of gastro-intestinal, diabetic, gouty and nephritic cases. The number of persons thus involved is, comparatively speaking, not large. The diabetic for whom cost happens to be a matter of determining importance is advised by Schmidt[2] to replace the expensive fresh meats and poultry by cheaper smoked products and fish, to use cheese in place of eggs, and to substitute the cheaper fats for butter. In other types of disease, such as gout, the changes required by the limitations of the food supply actually are in harmony with the best practices of dietotherapy. There are, however, many patients with defective gastro-intestinal function, involving diminished secretion, ptosis and atony, who do not thrive on the coarser diet of war times. They cannot readily "manage" the foods rich in cellulose, and they complain of intestinal disturbances. It sounds strange to our ears to hear that patients are actually given a prescription or permit to enable them to procure wheat flour or wheat bread for the preparation of toast. Here, too, the refinements of cookery, along with the modern milling of the various grains and the preparation of comminuted vegetables, are likely to eliminate in part the widely maintained distinctions between the animal and vegetable products. This is in harmony with the success of numerous sanatoriums conducted on vegetarian principles in matters of diet.

1. The War and Practical Dietetics, editorial, The Journal, A. M. A., July 3, 1915, p. 31.
2. Schmidt, A.: Volksernährung und Diätetik in Kriegszeiten, Therap. d. Gegenw., 1915, lvi, 81.

It is interesting to learn the difficulties of decision that frequently confront the physician in relation to the selection of men for military service. What is to be done with dyspeptic individuals subject to varying degrees of diarrheas? Shall they be drafted? A competent clinician[2] states that he has hesitated to exclude such persons from the service because the activity in the open air with its stimulation of the vegetative functions frequently has the effect of a curative tonic. At any rate, the failure of a compensatory relief usually results in their return home by direction of the army surgeons. Obviously, diabetics and nephritics cannot engage in active service in the field.

The various devices of the German army for furnishing suitable food to the troops in action are responsible for the unimpaired health of many persons of uncertain gastro-intestinal equipment. Fresh meats, potatoes and vegetables poorly cooked by the individual soldier under the stress of army conditions are certain to lead to dyspeptic diarrheas and alimentary irritations, the forerunners of the infectious invasion of the digestive tract. Experience in former wars abundantly verifies this statement. But the present field kitchens of the German army, the "Gulaschkanonen" as they have been fancifully called, have furnished foods that are cooked with great thoroughness, so that they are readily comminuted and then easily digested. The lessons of this diet service may well appeal to us.

WEISMANN AND THE INHERITANCE OF ACQUIRED CHARACTERS

An address by Professor Conklin[1] of Princeton before the American Philosophical Society in commemoration of August Weismann, the biologist, who died toward the end of last year, is particularly interesting to physicians because Weismann led our generation away from the fallacy that acquired characters are inherited. The whole aspect of heredity apparently has changed since Weismann's book "The Germ Plasm" was published, three decades ago. Before that time, physicians generally accepted as important evidence the expressions of their patients that their father or mother died of heart disease and that therefore it was to be expected that the offspring should suffer from a similar condition, or that since the father had a craving for alcoholic stimulants, his descendants could scarcely help but be inebriates. It is difficult to understand now how such a superficial mode of thinking passed without correction.

It might readily be concluded that the man who worked such a revolution in biologic thought must have been a great observer and probably master of many details in the biologic sciences. Nevertheless,

1. Conklin, Edwin G.: August Weismann, Science, June 25, 1915, p. 917.

Weismann, during twenty years of his life, suffered so much from eye infirmity that he had to be read to, and had to have most of the observations that he wished made done for him by assistants and students. While he planned his experimental researches, he had to depend on others as a rule to make them for him. It would scarcely be expected that experimental work done by assistants would count for much in science. It would surely be thought that a man could not loom large in the science of his time whose reading had to be done for him for the latter fifty years of his life, at first by his wife and after her death by a secretary. Weismann belied all these expectations and made a place for himself among the leaders of science. He demonstrated beyond all doubt, as Conklin says, that "clear thinking is necessary in the advance of science as well as fine technic." Above all, he made it clear, to a more or less scornful world, that the brains are even more important than the hands and eyes in the discovery of biologic truth. "It does not fall to the lot of any man to make no mistakes, and in this respect Weismann was only human. But it has fallen to the lot of few men to do so much work of lasting value and to have so profound an influence on his day and generation as was true of August Weismann." Probably the handicap of weakness of vision must have been profoundly discouraging to Weismann. That he should have a significant career and reach any prestige in his chosen scientific work would seem impossible, and yet it may be that his weakness of vision made him think more deeply with regard to biologic questions.

His theory of the germ plasm as absolutely continuous from the present generation back to the earliest generations of living things and absolutely distinct from the somatoplasm or basic tissue of the body underwent some modification as the result of criticism, but it has now become the ordinary thought of most biologists. The potential immortality of the germ plasm led him to the conclusion that death is not a necessary correlative of life, but rather the result of higher differentiation. In this he anticipated Minot's view that "death is the price we pay for our differentiation." Conklin points out that Weismann predicted a number of other very concrete notions in science which had not been matters of observation, but which the developments of modern biology have brought to us and with them the confirmation of Weismann's theory.

Weismann had much to do with emphasizing the recognition of a purpose in living things. While he held tenaciously to a mechanistic conception of nature, he believed that extreme mechanism was consistent with a purpose in things that manifested itself in every detail. He held that "the most complete mechanism conceivable is likewise the most complete teleology conceivable. With this conception vanish all apprehensions that the new views of evolution would cause man to lose the best that he possesses — morality and purely human culture."

In a word, this partly blind man proved to be a leader in the thought of his time, and left many ideas that still influence deeply the philosophic as well as the biologic thought of our time. His challenge to the world to furnish any satisfactory proof of the inheritance of acquired characters still remains undefied. It is doubtful if any one believes today that the developed or somatic characters of an organism are transmitted to the next generation. "Weismann admitted in his later writings that the germ plasm might be modified to a limited extent by certain environmental conditions, but he held that such changes of the germ plasm led to general and unpredictable changes in future generations which might be wholly different from those somatic changes in the parents which are directly produced by such environment. This view is now widely accepted."

No one knew better than Weismann himself that he had not reached ultimate truth or that there were not errors in some of his conclusions. He closes his essay on "Life and Death" with the candid confession that it is the seeking and not necessarily the finding, the hunt and not the capture, that is the source of satisfaction and true pleasure in life. In his own beautiful words, "After all it is the quest after perfect truth, not its possession, that falls to our lot, that gladdens us, fills up the measure of our life, nay! hallows it."

THE WATER SUPPLIES IN THE PHILIPPINES

The importance of good water supplies adequately protected from danger of contamination is recognized; good drinking water has become a primary necessity for hygienic living. The suitability of water for a municipal supply depends on its freedom from sewage and other contamination and, in a lesser degree, on its hardness and other physical properties. Previous to the American occupation of the Philippines, the eight million inhabitants, with few exceptions, were dependent for their drinking water on surface supplies, shallow dug wells, open springs or water courses. There was probably not an artesian well in the islands, and the relation between water supply and public health was seldom considered. The only public water supply installation was at Manila, which derived its water from an often dangerously polluted source. Few Filipinos were free from intestinal parasites, and epidemics of water-borne diseases were prevalent.

The problem of obtaining an adequate supply of potable water in the Philippine Archipelago is peculiarly complex.[1] The surface water in the

1. Much of the information referred to is derived from the elaborate paper by Cox, A. J.; Heise, G. W., and Gana, V. Q.: Water Supplies in the Philippine Islands, Philippine Jour. Sc., Section A, 1914, ix, 273.

inhabited districts is generally unfit to drink, and the widespread ignorance of the rules of sanitation greatly increases the difficulty of keeping such water unpolluted. Although usually undesirable sources of water supply, rivers are necessarily used in some parts of the Philippines, where other satisfactory supplies are not available. In these cases, as is true at Manila at the present time, the proper protection of the water sources and the need of filtration and sterilization are serious municipal problems.

How little purity is to be expected in surface wells in the Philippines must be apparent when we recall that the state chemist of Indiana, Dr. H. E. Barnard, has found, by an examination of 5,000 in the very center of civilization, that over 50 per cent. were polluted, and has recommended the abandonment of every surface well in Indiana. Practically every shallow well examined by the Bureau of Science at Manila has been found dangerously polluted. As Cox and his associates in the study of the Philippine water supplies remark,[1] a simple hole in the ground, unlined and without a curb, covered partially with a loose bamboo platform, has frequently been considered an adequate and satisfactory installation. Such a well, situated in the midst of a crowed barrio where life is conducted in a primitive manner and where there are no sewerage facilities, cannot possibly be safe.

In a biologic study of Philippine waters made some time ago, Edwards[2] found 53 per cent. of all samples submitted dangerously polluted, and confirmed the generally accepted conclusion that all water used for drinking purposes should be boiled. In view of what we have already stated, it appears that the best natural potable water is to be expected from artesian wells. Ever since the American occupation, the insular government has stimulated the drilling of wells, particularly by minimizing the cost of the process. Since 1905, the Bureau of Public Works has drilled hundreds of wells at a cost of nearly a million dollars. The extensive analyses now available[1] show that the artesian water has been quite satisfactory from both the chemical and the biologic points of view, and at any rate has usually been far superior to previously used supplies.

It is an unexpected fact that the water from some of the artesian wells has been found too salty to drink. The high chlorin content, which is one of the most notable general features of the Philippine artesian waters, does not necessarily indicate sewage pollution, but rather seepage from the ocean or contact with underground salt deposits. Bacteria cannot be entirely removed from deep wells by pumping; hence flowing artesian wells from deep strata are to be preferred because they are practically sterile. A report of the Bureau of Health[3] notes remarkable improvement in general health conditions in localities in which the use of artesian water has become general. In some places the death rate has dropped as much as 50 per cent.

However insignificant the actual inherent curative properties of most mineral springs may appear on critical analysis, no country appears to be completely supplied with the agencies for restoring health if it is devoid of spas. We are informed by the authorities of the Bureau of Science that there are a large number of mineral and thermal springs in the Philippine Islands, many of which are located in places admirably suited for health resorts. At the present time the springs at only three places are much visited, namely, near Baguio, at Los Baños and at Sibul. The systematic study and exploitation of the balneotherapeutic possibilities involved remains for the future.

2. Edwards: Philippine Jour. Sc., B, 1908, ii, 21.
3. Ann. Rep. Philippine Islands Bureau of Health, 1907-1908, p. 25.

SEX ORGAN CHANGES IN INSANITY

Recent histologic examination of the testicles in insane males, and of the ovaries in demented females, has demonstrated that Nature tends to limit reproduction in those who are mentally unsound. Degenerative changes and atrophy of these organs are so pronounced in some of the severe psychoses as to make procreation impossible.

Todde[1] compared the volume and weight of testicles from insane patients with those of individuals dying from accident or usual illnesses. He found that the testes of the insane were notably smaller, and that altered structure and function were present in the various groups of mental disease, and seemed, for the most part, independent of the age. The most constant and distinct lesions were found in the testicles of idiots and imbeciles, in which, not infrequently, absolute arrest in the development of these organs had occurred. In other instances, degenerative changes were present in the spermatoform and interstitial structures of both the epididymis and seminiferal canals. There was also a marked increase in the intercanalicular tissue.

In contrast to these findings are the changes which occurred in dementia praecox. Here a great variation was found. In some cases there was an alteration of the "filial" cells and therefore a diminution of function. More often, however, there was a degeneration of the cells which have to do with the production of spermatozoa, or an atrophy of the seminiferous tubules with an accompanying increase in the intertubular connective tissue. In these cases there was an absence of spermatozoa. In senile dementia, irrespective of the patient's age, function was frequently abolished and there was an atrophy

1. Todde: Ricerche sulla funzione e sulla struttura delle ghiandole sessuali maschili nelle malattie mentali, Riv. sper. di freniat., 1914, xl, 233.

of the testicles. In other cases, there was evidence of marked diminution of function. This was also found in dementia paralytica, manic-depressive insanity, and in the so-called secondary dementias. In the psychoses attendant on the late stages of pellagra, evidences of hypofunction were present, which were directly proportional to the length and severity of the mental derangement. As one would expect, the forms of insanity of alcoholic origin have least effect on the genital organs. Nevertheless, a diminution of glandular activity usually occurs.

After a study of serial sections of ovaries from one hundred women who suffered during life with some form of mental disease and who died before reaching the menopause, Laura Forster[2] came to similar conclusions. She found that in mental disease there was either a lessening or a complete loss of ability to reproduce. This was especially true in dementia praecox, in which, at the age of thirty years, there was marked evidence of involution of the ovaries with an interstitial connective tissue increase and a smaller number of graafian follicles. Thus, there seems to be no relation between the changes in the sexual organs of the insane and the age of the patients. The degenerative processes are apparently in direct proportion to the duration and gravity of the mental disease.

It is of interest in this connection to recall the work of Fauser[3] and others who found, by using the Abderhalden method, that there are circulating in the blood, in dementia praecox and other mental disturbances, enzymes which are specific for testicular protein in the male and ovarian proteins in the female.

HEMOLYTIC JAUNDICE AND SPLENECTOMY

Since Minkowski in 1900 called attention to a syndrome which we now know as hemolytic jaundice, reports of about 150 cases have appeared in the literature. Few of these have been described in this country. Although at first considered a rare condition, hemolytic icterus probably occurs more frequently than ordinarily supposed.

The disease occurs congenitally and in families; as many as sixteen members of the same family in several generations have been affected. There is also an acquired type. While patients often reach old age unaware of their illness, symptoms are usually more severe in the familial cases of the second generation. The important symptoms are jaundice, splenic enlargement, anemia, fragility of erythrocytes, and "crises of pain." The jaundice is light, often preceded by enlargement of the spleen; at first it may be intermittent, but later it tends to become continuous. The stools are colored and contain an excess of urobilin. The urine contains urobilin and urobilinogen in large amount but no bilirubin, whereas the blood serum contains bile pigment. Pruritus, slow pulse, tendency to hemorrhages and other symptoms of ordinary jaundice are absent. The spleen, while varying in size, is usually large, and often causes a dragging pain.

The liver is rarely enlarged. Abel considers the shrinking in size of the spleen, even to one fifth of its volume, as a result of the subcutaneous injection of epinephrin, a diagnostic sign of value. The anemia, while usually of low grade, may at times show the picture of pernicious anemia. The fragility or decreased resistance of red cells to hypotonic salt solution is practically diagnostic when present, but it may be absent, particularly in the familial type. The "crises," occurring as often as every three or four weeks, are frequently mistaken for gallstone colic. An attack begins suddenly, often with fever, and lasts several days. The jaundice increases, bile pigment may be found in the urine, and the spleen enlarges and becomes tender. Gallstone formation is a frequent complication.

The cause of the disease is not known. The supposition that it concerns congenitally deficient red cells still has advocates. Autohemolysins and isohemolysins have been found. In the light of the effect of its removal, the spleen must be regarded as intimately associated with the cause. Kling and Eppinger found an increase in iodin and in unsaturated fatty acids in the blood, followed after splenectomy by a reduction in iodin and an increase in total fats and cholesterin. Gibson found a streptothrix in the spleen. Eppinger suggests that the blood, obstructed by narrow splenic capillaries, is hemolyzed by contact with the connective tissue. Many authors ascribe to the spleen a regulatory effect on the function of the bone marrow, possibly by the action of a hormone. Eppinger, by analogy, designates the condition in hemolytic jaundice as a hypersplenism, as contrasted to hyposplenism manifested by polycythemia. The jaundice is ascribed to stasis in the bile capillary produced by the thick, viscid bile formed in excessive red cell destruction, the character of the bile forming pigment stones. Perhaps the spleen is only a link in the chain, and probably the whole hematopoietic system is at fault.

The spleen, removed at operation, shows slight if any connective tissue proliferation. There is a loss in follicles and in germinal centers, while the pulp is usually infiltrated. The proliferated endothelium in most cases is filled with coarsely granular hemosiderin. Necropsy shows little change in the liver except that there is a pigmentary deposit which in part is iron-containing, and which is present also in the

2. Forster, Laura: Epitome, Asylum Reports, Jour. Ment. Sc., 1915, lxi, 302.
3. Fauser: Deutsch. med. Wchnschr., 1913, xxxix, 304; 1912, xxxviii, 2446.

kidneys and in the bone marrow in some cases. The condition of the bone marrow indicates overactivity.

Before splenectomy was performed, the results of treatment were unsatisfactory. The mechanism of the improvement after splenectomy is not known. The work of Pearce and his associates suggests that toxic and hemolytic agents or their sources are removed with the spleen. That some patients are not benefited so much as others may be explained by the assumption that the thymus and hemolymph glands take over the spleen function. Küttner, in necropsies after splenectomy, found over 100 new spleens which certainly had grown enormously after the operation, at which they were not observed.

Including the first case, which was reported by Banti in 1912, and the earlier operations performed before the clinical picture was recognized, forty-eight splenectomies have been done for hemolytic icterus.[1] In this series, three patients died, one, a poor surgical risk, following operation, another of sepsis of the pedicle and the third of unknown causes over three months after operation. The forty-five patients reported as "cured" were relieved of jaundice and of the crises. While most cases still are recent, one patient, after twenty-seven years, another after ten years, one after nine years, one after six years and nine patients after six months have been reported as well.

Following operation there is a leukocytosis in most cases, an initial fall in the number of red cells, as observed after experimental splenectomy (Pearce), in a number of cases, and pain in the left shoulder, probably from the breaking up of diaphragmatic adhesions. Jaundice disappears in from a few days to two weeks, and urobilin vanishes from the urine. The red cells steadily increase in number, to more than four million in twenty-two cases and to more than six million in three cases. The resistance of red cells in one case was found normal five weeks after splenectomy, but in most cases no change is noted before three months. Indeed, after twenty-seven years, one patient still showed fragility of red cells. On the whole, return to normal resistance appears to be the exception. Except in the presence of a positive contraindication to operation, splenectomy is to be recommended not only in the severe cases, but also in the milder but progressive types, to forestall the formation of gallstones and to help patients who are always more or less ill, although they may not as yet suffer from severe crises.

Naturally the beneficial result of splenectomy will stimulate the interest in hemolytic jaundice, and in the study of the splenic function, particularly in relation to the organs concerned in blood formation and destruction.

1. Elliott, C. A., and Kanavel, A. B.: Splenectomy for Haemolytic Icterus, Surg., Gynec. and Obst., 1915, xxi, 21.

HEREDITY IN MENTAL DISEASE

The new science of eugenics has as its subject-matter the question of race improvement through heredity. It obviously suggests a number of topics which bear an important relation to practical problems of everyday life. The interest in the subject of eugenics has served to recall the older discussions of the relative parts played by heredity and environment in the modification of the race. The question of nature versus nurture has been raised anew.

Only a misguided enthusiast would venture to make great claims at the present time for the possible future usefulness of applied eugenics. The doctrines of heredity on which the new postulates are based must first be subjected to critical investigation. Data that are as free as possible from unrelated variables need to be collected in greater number and evaluated. The limitations of the practical aspects of eugenics must be clearly formulated and emphasized. It is well enough to maintain in a general way that vitality is partly inherited and partly acquired, and that "a sound physical and mental inheritance is a greater asset than the inheritance of extraneous advantages like wealth." Many individuals, however, have assumed that the new science is primarily intended to foster a scheme of general governmental interference with marriage. As a matter of fact, the most earnest students of the subject have at best hoped to promote the gradual establishment in public opinion of fundamental standards. Any hope of improving the quality of the race by preventing the production of poor stock in mankind and encouraging the breeding from the best can be accomplished only on the basis of sound knowledge of the heredity factor. A recent writer has wisely and cautiously remarked that, as a matter of fact, in the development of an individual both nature and nurture play important parts; nature, that is, the character of the stock, determines the potential possibilities in the fertilized ovum; while nurture, or the character of the environment, is influential in exciting or repressing the development of these possibilities.

The principle of mendelian inheritance, which is a conspicuous feature of the doctrine of eugenics, involves the general idea that characteristics handed down by inheritance from parents to offspring may be treated as separate units. It is implied in this view that these unit characters are conveyed by definite substances or structures in the germ plasm which, for convenience, have been designated as "unit factors." Their nature is unknown. Whenever a pair of alternating characteristics are brought together, the blending of parental characteristics may occur; but frequently one is likely to be dominant, the other recessive. To cite a specific example, if each parent possesses one of the alternating characteristics, such as brown and blue eyes, respectively,

the children will all show the dominant characteristic, in this case brown eyes; but the other characteristic will be present in a recessive or concealed form and may crop out under suitable conditions in a subsequent generation. It is not necessarily lost.

Although physical features involving color, stature and form are realized to conform in many instances to the principles of mendelian inheritance, the possibility that mental traits are likewise transmitted has not found as ready acceptance. It is often conceded that predisposition plays an important rôle in mental disorder; but it would be difficult to formulate any very precise definition as to what is meant by such a pronouncement. An attempt at a more rigid analysis at once raises the question of the nature of recognized mental diseases. Are they to be conceived as "distinct entities, manifestations of a single, indivisible, disturbing factor," or are they merely "syndromes or chance associations of symptoms?" The latter could scarcely be expected to follow any very strict hereditary sequence.

Huntington's chorea offers a comparatively clear type of neuropathic entity, in which four traits are frequently bound together, namely, persistent localized tremors; the onset of these tremors in middle or late life; their progressive nature, and progressive mental deterioration. Prof. C. B. Davenport[1] of the Carnegie Institution of Washington has been engaged in a study of four family complexes in Eastern Long Island, Southwestern Connecticut, South-Central Connecticut and Eastern Massachusetts which show nearly a thousand cases of Huntington's chorea and yield the remarkable result that practically all can be traced back to about half a dozen individuals, including three (probable) brothers who migrated to America during the seventeenth century. The method of inheritance of some of the elements of Huntington's chorea has been worked out. In general, the choreic movements never skip a generation, and in other respects show themselves clearly to be a dominant trait. The mental disorder is usually of the manic type, and this also shows itself as a dominant.

Among the 3,000-odd relatives of the 962 choreics studied, many nervous traits are recorded. Thus, epilepsy is recorded 39 times, infantile convulsions 19 times, meningeal inflammations and brain fever 51 times, hydrocephaly 41 times, feeblemindedness 73 times, Sydenham's chorea 11 times, and tics 9 times, mostly in one small family. As Davenport points out, this incidence, which would seem high for an unselected population, suggests that chorea occurs in families characterized by a general liability to nervous and mental troubles.

This is a remarkable story of the presumable hereditary nature of mental disease — of a tendency along choreic lines handed down from six or seven ancestors almost without a break through generations. Hitherto genealogical records of human beings have had much to say of social position, and very little of physical capacity or intellectual ability. It is not beyond the bounds of possibility that some day a physical pedigree in man will be rated at its true value.

Without looking forward to a time when the pride of inheritance will include physical, mental and moral stamina as important, if not as the chief items, we can still be awakened to a thoughtful attitude in the face of such statistics as the Eugenics Office has furnished for Huntington's chorea.

1. Davenport, C. B.: Huntington's Chorea in Relation to Heredity and Eugenics, Proc. Nat. Acad. Sc., 1915, i, 283.

THE RESISTANCE OF PURE PROTEINS TO BACTERIAL DECOMPOSITION

It is a current custom to speak of the destructive action of bacteria on proteins with the confidence that attends the observations of everyday experience. This proteolytic phenomenon is assumed as the basis of those changes which go under the name of putrefaction. It will therefore come as a matter of surprise to many to learn that the general caption of the destructibility of proteins by these micro-organisms cannot be defended in all its details. We refer to the now definitely established fact that some of the purified proteins, in their native condition unaltered by preparatory reagents, are resistant to the disintegrative action of bacteria so long as no other sources of nitrogen are present in the culture mediums.[1] This statement holds true for the deportment of a number of bacteria now studied, including characteristic putrefactive anaerobes of the type of putrificus and malignant edema bacilli, in relation to purified egg-albumin and the crystallized vegetable protein edestin from hemp seed.

Putrefactive micro-organisms grow rapidly, as every one knows, in solutions containing products of protein digestion, such as peptone. The failure of many familiar bacteria to develop perceptibly in these pure protein mediums undoubtedly lies in the fact that the organisms are not supplied with nitrogen in a form which is available for their immediate use. In other words, as Sperry and Rettger have expressed it, they come to a standstill in their development or they die from inanition.

Solutions of native proteins may undergo complete proteolysis, however, if they contain peptone or some other nitrogenous food material which readily furnishes the necessary nitrogen for bacterial development. In such instances the proteolysis of the native protein is the immediate result of the action of an enzyme which has been elaborated by the bacteria during the process of rapid multiplication. This multi-

1. Bainbridge, F. A.: The Action of Certain Bacteria on Proteins, Jour. Hyg., 1911, xi, 341. Sperry, J. A., and Rettger, L. F.: The Behavior of Bacteria Toward Purified Animal and Vegetable Proteins, Jour. Biol. Chem., 1913, xx, 445.

plication is made possible by the nitrogen-containing material which is present along with the native protein. According to Sperry and Rettger, the resistance of native proteins is not due to any antiseptic properties of the undigested proteins, but presumably to the absence of any enzymatic agency to start their cleavage and perhaps to the molecular structure of the intact albuminous substances. Egg white is now believed to have an antiseptic, and in a measure bactericidal, action on certain anaerobic organisms. This property is undoubtedly not due to the specific protein egg albumin contained in the egg white, but to other agencies in the egg. Evidently the bacterial decomposition of animal and vegetable protein matter, which is of so much economic importance, is made possible through the agency of an intermediary, like the nitrogenous products of autolysis, or any other nitrogenous substance which furnishes sufficient nitrogen for the early development of the proteolytic bacteria and for the production of the enzymes which in themselves bring about the proteolysis.

Current Comment

FLIES AND SICK BABIES

The Bureau of Public Health and Hygiene of the New York Association for Improving the Condition of the Poor, in cooperation with the department of health, has conducted an investigation into the relation between the presence of flies in houses and the occurrence of diarrhea in small children. It was desired to determine whether the house fly is the chief carrier of diarrhea or whether dirt in the home and artificial feeding are more deadly factors in this serious condition. The cases investigated were divided carefully into a fly-protected group and a fly-exposed or control group. These groups were made as similar as it was possible to make them. The infants were visited every five days by nurses. The fly-exposed or control cases received all the instruction given in child hygiene work, but no special emphasis was laid on eliminating the house fly. In the protected group the greatest emphasis was laid on the absolute protection of the baby as far as possible from contact with flies. For the infant in the cradle, in the go-cart, on the bed and even in the arms the constant use of netting was insisted on. Over a thousand yards of netting were distributed among the protected families. Some of the results of the study are now being published in order to emphasize its lessons for the present summer. It was found that almost twice (1.9) as many infants were attacked by diarrhea among fly-exposed as among the fly-protected infants. Apart from the influence of flies, it was found that almost twice as many infants were attacked by diarrhea in dirty homes as in the clean homes. The most important factor for child mortality, however, was found to be artificial feeding. Nearly two and a half (2.4) times as many infants were attacked by diarrhea among the artificially fed as among the breast-fed infants. The influence of flies and dirt combined was found to be almost exactly equal to that of artificial feeding, even in reasonably good surroundings. Almost two and a half (2.4) times as many fly-exposed infants in dirty homes were attacked by diarrhea as were fly-protected infants in clean homes. The combination of dirt and artificial feeding made life extremely difficult for the infant. Considerably more than one out of two of them were attacked by diarrhea. Concrete studies of this kind in detail can scarcely help but be of great service in impressing the fact that disease among children is not a mysterious dispensation, but the result of common factors: flies, dirt and artificial feeding.

ANTIVIVISECTION IN CALIFORNIA

An incident highly instructive in its bearings on the struggle to preserve freedom of medical research in the United States occurred during the recent session of the California legislature. The antivivisectionists introduced a bill providing for a commission of inquiry into laboratory conditions in the state. As usual, the advocates of the measure supported their claims by lurid tales of atrocious cruelty to animals at the hands of experimenters, and they took care that the proposed commission should consist largely of persons known to be antagonistic to the use of animals for experimentation. Such legislation has been repeatedly advocated in Eastern states, but has always been refused serious consideration by legislative bodies. The partisan character of the proposal offered in California was apparently recognized, but, instead of objecting to it on that ground, interested members of the legislature suggested a compromise. A substitute measure authorizing officers of humane societies to inspect and supervise laboratories was introduced, and with very little discussion it passed both houses. The ease with which a measure of this character can receive favorable legislative attention is as surprising as it is illuminating. The bill as passed would give to any antivivisectionist, who wished to form a humane society with himself as president, the right of unlimited search without warrant—a right not possessed even by the constituted officers of the law—the police, the constables and the sheriffs! Furthermore, the inspectors thus provided for would be persons without any required training whatsoever, and they would be placed in judgment over highly trained laboratory workers who are investigating the most perplexingly developed structures and the most involved and entangled processes in Nature. One needs only to glance at antivivisection literature to learn how readily the untrained mind grossly misinterprets the facts of biologic observation. Inspectors wholly lacking insight into the extraordinary complexities of medical research are absolutely incompetent and, if permitted to act, could prove only their own capacity for blundering. The harassing of medical investigators by perpetually classing them with suspected criminals and subjecting their labors to the stupid meddling of suspicious and ignorant fanatics

would have been disgraceful. Fortunately, the bill did not become law. The words of the governor of California, explaining his refusal to sign the bill, are pertinent in every commonwealth where antivivisection legislation is attempted:

> The antivivisection law is so positively declared illegal by the attorney general that even were I disposed I could not sign it. I may add that the laws of the state of California for the prevention of cruelty to animals and the punishment of those guilty are plenary. Full authority is given to the humane officer, under the law, to obtain search warrants, enter premises, and gather such evidence as he may suspect exists. With our drastic laws, there can be no excuse for those who insist cruelties are practiced upon animals for permitting these cruelties to continue or those practicing the cruelties to go unpunished.

A PHARMACEUTIC EXPERIMENT STATION

During recent years the number of medical schools which have been provided with facilities for research through state grants or by private endowments has rapidly increased. While much is still to be hoped for, the outlook for medical advance is far brighter in this respect than it is in the related branch, pharmacy. Pharmacy schools, whether privately owned or controlled by the state, are almost without exception devoted to the routine instruction of students, and are, as a rule, doing nothing toward the advance of pharmacy as a science. A notable exception to this backward condition of pharmaceutic education was the establishment of a pharmaceutic experiment station by the Wisconsin legislature in 1913. The statute creating the experiment station provides that it further the cultivation and investigation of medicinal plants. In the first annual report of the director of the station,[1] Edward Kremers, a well-known authority and author on plant chemistry, gives an indication of what may be expected from this pioneer work. The station not only is engaged in the experimental cultivation of medicinal plants, but also cooperates with the government in this field, and offers its help and advice to those who wish to engage in this relatively new American industry. While drug cultivation is to be a prominent feature of the station's scope, the work planned by the director has a wider sphere. The present report shows that plant analysis, a most neglected subject, as well as the so-called synthetics, is to receive attention.

1. Report of the Director of the Pharmaceutical Experiment Station, Bull. 542, Univ. Wisconsin, December, 1914.

CLINICAL INVESTIGATION IN HOSPITALS

The practical value of a remedy, after the chemist, the pharmacist and the physiologist have made their investigations, must be determined finally by the clinician. In private practice, ordinarily, it is impossible to draw scientifically accurate deductions regarding the action of remedies, because it is impossible to exercise adequate control of all the factors which affect the case. A patient recovers under a certain drug treatment; how much of the credit, then, should be awarded to the drug and how much to the diet, the rest in bed, and the other nonmedicinal therapeutic measures—not to speak of the natural tendency of the organism toward recovery? The answers to these questions can be obtained only by comparison and observation of large series of cases treated under like conditions. This means that final judgment on remedies must be rendered in hospitals where all the conditions can be controlled and checked. The carefully planned clinical investigations of the Council on Pharmacy and Chemistry regarding the comparative value of "synthetic" and "natural" salicylic acid[1] and the relative action of heavy and light and Russian and American liquid petrolatum,[2] and the studies of Eggleston[3] on the action of digitalis preparations and of Lester Taylor[4] on the relative efficiency of caffein and theobromin illustrate the type of research that is urgently needed. Similar clinical trials of the various bromids of the pharmacopeia, of the innumerable iodin preparations, of the many iron compounds, and similar preparations will probably demonstrate that not one tenth of our present materia medica is of real practical value. Of course, ill-considered experimentation and haphazard trials, whether performed in hospitals or in private practice, are to be condemned. Occasional reports indicate that interns in some hospitals are given to using drugs experimentally in a way which can promote neither the science of medicine nor the good of the public. We have in this country many large and well-equipped hospitals, superintended by high-grade physicians. Tremendous possibilities for good rest in the hands of those who direct these institutions. By clinical investigation they could increase the efficiency of the staff, benefit the patients, and at the same time perform signal services to medical science.

1. Hewlett, A. W.: Clinical Effects of "Natural" and "Synthetic" Sodium Salicylate, THE JOURNAL A. M. A., Aug. 2, 1913, p. 319.
2. Bastedo, W. A.: Clinical Experience with Liquid Paraffin (Liquid Petrolatum), THE JOURNAL A. M. A., March 6, 1915, p. 808.
3. Eggleston, Cary: Clinical Observations on the Duration of Digitalis Action, THE JOURNAL A. M. A., Oct. 12, 1912, p. 1352; Clinical Observations on the Emetin Action of Digitalis, Sept. 6, 1913, p. 1757.
4. Taylor, L.: Clinical Studies in Caffein, Arch. Int. Med., December, 1914, p. 1769.

Typhoid Fever.—An analysis of the typhoid fever situation in Chicago for the first four months of 1915 shows that there were 271 cases during that period. Investigation revealed the source of the disease in 79 cases, or 29 per cent., which was as follows: imported, 28, or 10.33 per cent.; infected by carrier, 5, or 1.85 per cent.; contact from typhoid cases, 16, or 5.9 per cent.; contracted from unpasteurized milk (one dealer), 30, or 11.07 per cent. The death rate per 10,000 of population during these months was 0.1430. The analysis further shows that the disease prevailed more largely in certain districts getting their water supply from lake stations the water from which shows either constantly or periodically considerable colon contamination. The report of the department laboratory containing the result of four years' examinations of the city water, also referred to in the *Bulletin* of the department, from which the above facts are taken, shows that the water from certain of the lake stations, notably the Lake View Station and the Two-Mile Crib, are contaminated usually above the average of the city supply, although there has been a general improvement at all of the stations. Chemical treatment of the water has been begun at some stations. Sewage from north shore towns seems to be the source of contamination of the water of the north shore, as revealed by a survey made by the department in connection with the North Shore Sanitary Association.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Health Survey.—Walker is one of the four counties in the United States for which the national government has arranged a health survey. The survey is to be under the direction of Surg. Leslie L. Lumsden of the Public Health Service, Dr. William H. Sanders, Montgomery, Dr. Ralph C. Williams, Jasper, of the State Health Board, and Dr. Carl A. Grote, Jasper, county health officer of Walker County.

ARKANSAS

Personal.—Dr. F. M. Lennard, Texarkana, was thrown from his motorcycle, June 20, fracturing two ribs.——Dr. Ida J. Brooks, Little Rock, has been appointed resident physician of the Maternity Hospital, Minneapolis, succeeding Dr. Martha G. Ripley, deceased.——Dr. August Harden, Antoine, was shot and seriously wounded during a fight between youths in church, May 30.——Dr. William P. Moore, Newark, has been appointed an intern in the State Hospital for Nervous Diseases, Little Rock, vice Dr. Patrick Murphy, resigned.

State Board Matters.—E. C. Everett, Little Rock, has been appointed a member of the State Board of Osteopathic Examiners to fill the vacancy caused by the resignation of A. E. Freeman, Russellville, who has removed to Greeley, Colo.——Dr. Wells F. Smith, Little Rock, has resigned as a member of the State Board of Health to become secretary of the State Board of Medical Examiners.——Dr. Henry L. Montgomery, Gravelly, has been appointed a member of the State Board of Health.

ILLINOIS

Personal.—Dr. Frances M. Smiley, Kewanee, fractured a bone in his left wrist, July 1, while cranking his automobile.——Dr. Clyde A. Finley, Galesburg, is reported to be seriously ill with appendicitis in the Galesburg Hospital.——Dr. Arthur J. Dalton, St. Joseph, has returned home convalescent after an operation for appendicitis.

Hospital Dedicated.—A building, said to be the first hospital erected by a Masonic order in America, was dedicated at Sullivan, June 25. The hospital has been built on a farm of 226 acres bequeathed to the Royal Arch Masons by Robert Miller. The institution will be known as the Royal Arch Masonic Hospital, and the chief oration at the dedication was delivered by Maj. Gen. George M. Moulton of Chicago. The grounds and building have a value of about $400,000, and the hospital will accommodate fifty patients.

Chicago

Personal.—Dr. Alice Hamilton has returned from abroad.——Dr. Theodore B. Sachs is holding over as superintendent of the Chicago Tuberculosis Institute, pending the appointment of his successor. His commission expired July 1.

Ambulance Presented City.—An automobile ambulance has been donated by Mr. John T. Crane for the use of the Iroquois Memorial Hospital, and the health commissioner has asked the council for an appropriation for the maintenance of the car.

Fresh Air for Babies.—In the baby-saving crusade of the Department of Health, six fresh-air colonies have recently been established in congested parts of the city, and ninety-three nurses, six supervising nurses and three supervising health officers are occupied in reducing the number of deaths among babies during the hot season.

Depage Memorial Fund Complete.—Mr. George F. Porter, chairman of the Murray Depage Memorial Fund, announced on July 2 that the fund of $20,000 has been completed and will soon be forwarded to Dr. Antoine Depage, surgeon general of the Belgian Red Cross. This fund is in memory of Madame Depage, who, after effective work for Belgium, both here and abroad, lost her life on the *Lusitania*.

Report on Psychopathic Institute.—In a report made July 9 to the Cook County Board by a special committee composed of Drs. Sydney Kuh, Harold N. Moyer and Hugh T. Patrick, it is stated that equipment which was purchased with the funds appropriated for the psychopathic hospital had been diverted elsewhere, that there had been a general inefficiency of management and an inadequacy of personnel. The committee recommends that the psychopathic hospital be taken from the management of the county hospital, that at least three physicians and several nurses be added to the staff, that proper records shall be kept and that provision shall be made for continuing the work after patients have been allowed to leave the hospital.

Daily News Sanatorium.—The report of the *Daily News* Fresh Air Fund shows that the construction of the new sanatorium building at Lincoln Park was postponed on account of the delay in preparing the site on the new land opposite the present location. It is hoped that work on the new building may be commenced this fall. Contributions to the building fund last year amounted to about $10,335.60, making the entire fund on the first of January $42,425.03. The estimated cost of the new building is $90,000, leaving a balance of about $40,000 to be provided, inasmuch as the *Daily News* has made a contribution of $10,000 to the fund.

INDIANA

Summer Mission Anniversary.—The Summer Mission for Sick Children, Indianapolis, celebrated its twenty-fifth anniversary, July 1. Dr. Charles P. Emerson, Indianapolis, who delivered the principal address, lauded the work done by the mission in the prevention of infant mortality and paid especial tribute to the founder of the mission, Mr. Oscar C. McCullough.

Sanitation of Public Schools.—The Indianapolis Board of Health, at a recent meeting, made a ruling that hereafter all public schools in the city shall be provided with sanitary fountains and sanitary towels.——The board has also made a contract with the Indiana Dental College providing that all schoolchildren who have defective teeth and who are unable to pay for proper dental work, shall be treated by the staff of that institution.

Personal.—Dr. Charles S. Woods, formerly city sanitarian of Indianapolis, but more recently a professor in the University of Iowa, has been elected secretary and superintendent of the Methodist-Episcopal Hospital, Indianapolis, succeeding Dr. John McLean Moulder, Indianapolis, resigned.——Dr. John F. Barnhill, Indianapolis, has been appointed chief of the ear, nose and throat department of the Indiana University School of Medicine.——Dr. Edwin W. Poinier, Huntington, was operated on at the Huntington Hospital, July 2.——Dr. Hugh M. Miller, South Bend, who was operated on, June 23, at Johns Hopkins Hospital, Baltimore, is convalescent and expects to return home soon.——Dr. Harvey H. Martin, Laporte, has been appointed local surgeon of the New York Central Lines.——Dr. and Mrs. Charles W. Corey, Hartford City, started for California, June 27.

MARYLAND

Personal.—Surgeon-General Gorgas, U. S. Army, who is acting somewhat in the capacity of a consulting expert in Baltimore's war on the mosquito, was in Baltimore, July 9, and spent a large part of the day going over what has been done since the campaign of extermination began.——Dr. David Street is in St. Agnes' Hospital critically ill with intestinal trouble, for which he has been operated on by Dr. Joseph C. Bloodgood.——Dr. Louis L. Lloyd, Baltimore, was operated on for appendicitis, June 26, in the Maryland General Hospital.

New Surgery for Maryland General Hospital.—A new surgery for the Maryland General Hospital has just been completed and equipped at a cost of $15,000. The surgery is located on the fifth floor of the building formerly occupied by the Baltimore Medical College. There are three operating rooms, two recovery rooms, two anesthetizing rooms, a sterilizing room, a preparation room, an instrument room and a locker room. The first operation in the new surgery was performed by Dr. John D. Blake. It will be formally opened to the public, July 15 and 16.

MASSACHUSETTS

Oldest Medical Alumnus.—The oldest medical alumnus of Harvard Medical School is believed to be Dr. James Lloyd Wellington, Swansea, who retired in 1904 after having practiced medicine for sixty-two years.

War Unit Sails.—The second Harvard unit for service in Europe was mustered in, June 18, and sailed from New

York, June 26. The party consisted of thirty-five surgeons, all graduates of Harvard Medical School, and seventy-five nurses. The unit will serve for three months in British base hospitals.

Alumni Election.—At the annual meeting of the Harvard Medical Alumni Association, June 24, the following officers were elected: president, Dr. Frederick Cheever Shattuck, 1873; secretary, Dr. Arthur Brewster Emmons, II, 1902, reelected; and treasurer, Dr. James Bourne Ayer, Jr., 1907; all of Boston.

Creel Comes for One Year.—Surg. Richard H. Creel, U. S. P. H. S., whom Boston has been trying for a long time to secure as commissioner of health, has now, it is reported, agreed to come to Boston for one year and reorganize the Department of Health under the terms of the new ordinance and with special reference to the taking over by the government of the Municipal Quarantine Station. It is said that Dr. Creel's salary will be $7,500 a year.

Personal.—The fiftieth anniversary of the entrance of Dr. Amasa E. Paine, Brockton, into the medical profession was celebrated by the Brockton Medical Society, June 24. A mahogany clock suitably inscribed was given Dr. Paine by the society.——Dr. James W. Manary, Boston, of the house staff of the City Hospital, fractured his right arm while cranking his automobile, June 24.——Dr. Walter C. Bailey, chairman of the trustees of hospitals for consumptives, Boston, has resigned, taking effect July 1.

Tuberculosis Dispensary Notes.—The new tuberculosis dispensary at Wakefield is practically ready and it is expected that it will be opened this month. The Board of Health has rented quarters in the Taylor Building, which provides a waiting room for attending and giving advice to tuberculosis patients.——The new tuberculosis dispensary at Haverhill was opened, July 2, with Dr. Israel J. Clarke as physician in charge. The dispensary is located on the second floor of the City Hall.——The Employees Tuberculosis Relief Association of Springfield was organized, June 25, and elected officers and a board of managers. About $2,700 has already been collected for the general fund.——The tuberculosis hospital of Everett was opened for public and official inspection, June 18. The institution will accommodate twenty-five tuberculosis patients and has an isolation ward for contagious patients. The building has cost about $10,000.——The tuberculosis dispensary of Springfield was opened, July 1. Two rooms have been obtained in the Dwight Manufacturing Company's dispensary, and Dr. Charles H. Prindle, Chicopee, is in charge.

MICHIGAN

Hospital News.—Dr. James C. Martin, health officer of Highland Park, has asked the council to consider plans for two hospital units, one for contagious diseases and one for emergency cases. These two units could be built for $50,000.——Charles S. Mott, formerly mayor of Flint, has offered a gift of money to build a three-story addition to Hurley Hospital, the only condition being that the present hospital be sold and the proceeds from this sale applied to the cost of a new building.

Personal.—Dr. Ralph C. Apted, Grand Rapids, who underwent a serious operation on the gallbladder about two months ago, is reported to be improving after a relapse.——Dr. Della P. Pierce, Kalamazoo, was presented with a silver loving cup on the occasion of the twenty-fifth reunion of her class in the University of Michigan. Dr. Pierce has been secretary of the Alumni Association for ten years.——The degree of Master of Arts was conferred on Dr. Arthur F. Fischer, Hancock, at the recent commencement exercises of the University of Michigan, the reason assigned being his service in municipal and state health work, especially tuberculosis.——Drs. Johnson B. Kennedy, Albert McMichael, Warren L. Babcock and Robert J. Palmer, all of Detroit, were guests of honor at a dinner given, June 25, by the staff of Grace Hospital, Detroit. These gentlemen and their wives started on a trip to Alaska, California and Hawaii, July 4.——Dr. William H. Price was reappointed health officer of Detroit, June 25.——Dr. Albert E. Bryant, Detroit, has succeeded Dr. James A. McVeigh, Detroit, as physician to the Smallpox Hospital.——Dr. Florence Huson, Detroit, who has been seriously ill at her home, is reported to be improving.

NEW JERSEY

Compulsory Vaccination Mandatory.—Assistant Commissioner of Education John Enright has given as his opinion to the board of education of Newark that compulsory vaccination of schoolchildren is mandatory on the board. The board also had a similar opinion from its counsel. The question was brought up by the activity of the antivaccinationists, headed by James C. Corlies, a veterinarian, who brought to a meeting of the board of education a doctor of New York, who presented the usual arguments of the antivaccinationists.

Hygiene Workers Hold Meeting.—At the first annual meeting of the State Association of Medical Inspection and School Hygiene, held in Newark, June 25 and 26, the following officers were elected: president, Dr. George J. Holmes, Newark; vice president, Dr. Henry H. Davis, Camden; secretary, Miss Josephine Halberstadt, Newark; treasurer, Dr. Walter D. Weber, West Hoboken; and trustees, Miss M. E. Motzenbecker, Newark, and Drs. Eugene H. Goldberg, Kearny; Henry H. Brinkerhoff, Jersey City; Waldo U. Kurtz, Asbury Park, and Ralph D. Vreeland, Passaic.

NEW YORK

New York City

Personal.—Dr. and Mrs. James P. Boyd, Albany, have sailed for Europe.——Dr. M. Allen Starr has resigned the professorship of neurology at the College of Physicians and Surgeons in the City of New York, and has been succeeded by Dr. Frederick Tilney, Brooklyn.

Infant Death Rate.—The effects of the infant welfare campaign inaugurated by the State Department of Health a year ago have been gratifying in the extreme. The infant mortality for New York City was 102 deaths per 1,000 births in 1913, and 94 in 1914. For the rest of the state the corresponding rates were 120 and 110. The reduction in the rate outside of New York City from 120 to 110 corresponds to a saving of nearly 1,000 infant lives. Much yet remains to be done and there is no reason why the infant death rate for the whole state should not ultimately be forced down to the New York City figure or below it; this would mean a saving of over 1,500 more infant lives. There should be established more infant welfare stations and beneficial educational work of the public-health nurse.

NORTH CAROLINA

Woman's Hospital Opened.—Drs. William H. Crowell, Whiteville, and Charles H. C. Mills, Charlotte, announce the opening in that city of a hospital devoted entirely to maternity and gynecologic cases.

Recognition of Colleges.—A ruling was recently adopted by the North Carolina State Board of Medical Examiners that after 1915 no candidate will be admitted to the licensing examination unless he is a graduate of a college rated in Class A or Class B by the Council on Medical Education of the American Medical Association, and that after the 1917 examination only graduates of Class A colleges will be admitted.

Personal.—Dr. Archie A. Barron, Charlotte, has accepted service with the Virginia Life Insurance Company and will move to Richmond, Va.——Col. J. L. Ludlow, C. E., the only lay member of the Medical Society of the State of North Carolina, has been reappointed a member of the State Board of Health.——Maj. Francis J. Clemenger, Asheville; Capt. Thomas F. Reynolds, Canton, and Lieut. Francis M. Davis, Canton, officers of the Medical Corps of the National Guard of North Carolina, attended the maneuvers of the camp of instruction at Tobyhanna, Pa.——Dr. David A. Stanton, High Point, who was dispossessed of his position as city physician by a political upheaval recently, continues in office as registrar of vital statistics of the State Board of Health.

Antityphoid Vaccination Campaign.—The State Board of Health is pursuing a vigorous antityphoid vaccination campaign in ten counties which all are cooperating in the work. Five began a six weeks' course of general vaccination, June 21, with the following physicians to assist the local health officers: Henderson County—Drs. Edwin T. Sessoms, James A. McCoy. Buncombe County—Drs. W. B. Cox, William T. Boyette. Cumberland County—Drs. Paul C. Carter, Donald B. Moore, Drexel. Wake County—Drs. Grover B. Woodard, Lawrence O. Crumpler, William P. McKay. Northampton County—Clifton G. Parker, Woodland; William H. Sloan. These, with five other counties, have made appropriations for local expenses sufficient to secure the active cooperation of the state board under whose supervision the work is being done, aided by efficient local health officers. Lectures are given at each point, consultations on any disease question are afforded, records are systematically kept, and every effort

made to render the work thorough. The cost to the counties ranges from 10 cents to less than 7 cents a head. It is estimated that more than 50,000 persons will be vaccinated during the campaign.——The state laboratory of hygiene is running at its full capacity on account of the campaign against typhoid fever, and is now able to supply sufficient vaccine for 30,000 injections weekly. At present about 18,000 patients a week are being inoculated.

OHIO

Personal.—Dr. Maurice Feiman, Canton, who has been studying in Vienna for the last year, has gone to Switzerland.——Dr. William R. Coleman, Sugar Grove, who was painfully injured in an automobile accident, June 20, is reported to be doing well.——Dr. Samuel P. Fetter, Portsmouth, is reported to be improving.

Library Planned.—Rooms have been leased in the new Y. M. C. A. building, Canton, for a permanent medical library and lecture room, by the Canton Medical Library Association, an auxiliary of the Canton Medical Society, and the Chamber of Commerce. Dr. John P. DeWitt, Canton, is temporary chairman of the organization committee.

Western Reserve News Notes.—Prof. George N. Stewart of the H. K. Cushing Laboratory for Experimental Medicine, has sailed for Europe.——Dr. David Marine, associate professor of experimental medicine, sailed for France, July 3. He will be associated with Dr. Alexis Carrel at Compaigne during the summer in the study of wound infections.——Dr. Maurice L. Richardson, Hanna research fellow in pathology, has gone to Harvard for the summer for laboratory work.——Dr. Roland E. Skeel, associate clinical professor of gynecology, has had conferred on him the honorary degree of master of arts by the University of Michigan and Ohio Wesleyan University.

Western Reserve Graduates Called to Other Posts.—The following instructors and graduates of Western Reserve University have recently been called to other posts: Dr. Howard D. Haskins, '95, former associate professor of biochemistry, has been made professor of biochemistry in the University of Oregon, Portland; Dr. James Douglas Pilcher, '05, former assistant professor of pharmacology, has been made professor of pharmacology in the College of Medicine of the University of Nebraska, Omaha; Dr. Harold B. Myers, '11, formerly instructor in pharmacology at Bellevue Hospital Medical College, New York City, has been appointed professor of pharmacology in the Medical School of the University of Oregon, Portland; Dr. Aldis A. Johnson, '12, has been appointed assistant professor of clinical pathology in the College of Medicine of the University of Nebraska, Omaha, and Dr. Oscar Theodore Schultz, formerly assistant professor of pathology, has been appointed professor of pathology and bacteriology in the University of Nebraska College of Medicine, Omaha.

Faculty Changes.—The following promotions and appointments have been made by the trustees and medical faculty of Western Reserve University, Cleveland: William Henry Humiston, M.D., associate professor of gynecology, to be clinical professor of gynecology with seat and vote in the faculty; David Marine, A.M., M.D., assistant professor of experimental medicine, to be associate professor of experimental medicine; John James Thomas, A.M., M.D., associate in obstetrics, to be assistant professor of obstetrics; William Hawksley Weir, M.D., associate in gynecology, to be assistant professor in gynecology; George Bourne Farnsworth, A.B., M.D., instructor in obstetrics, to be associate in obstetrics; Paul John Hanzlik, Ph.C., A.M., M.D., instructor in pharmacology, to be associate in pharmacology; Roy Gentry Pearce, A.B., M.D., instructor in physiology, to be associate in physiology; Harold Oliver Ruh, A.B., M.D., instructor in pediatrics, to be associate in pediatrics; Oscar Theodore Thomas, M.D., instructor in gynecology, to be associate in gynecology; Harry Roswell Wahl, A.M., M.D., instructor in pathology, to be associate in pathology; Howard Dittrick, M.D., demonstrator of gynecology, to be instructor in gynecology; William Craw Gill, A.B., M.D., demonstrator of dermatology, to be associate visiting dermatologist of Lakeside Hospital; George Franklin Thomas, A.B., M.D., demonstrator of roentgenology, to be instructor in roentgenology, and George Eric Simpson, B.S., demonstrator of organic biochemistry, to be instructor in biochemistry.

Cincinnati

Personal.—Dr. Joseph L. DeCourcy has returned after two years' special study in New York City.——Dr. Robert Roy Sattler, son of Dr. Robert Sattler, is on duty with the Harvard Hospital unit in England.

Professorship Endowed.—Dr. Robert S. Morris, New York, has been offered and accepted the full-time professorship of medicine in the medical department of the University of Cincinnati. Thirty thousand dollars has been subscribed by friends of the university and of the late Dr. Frederick Forchheimer, after whom this chair is to be named, for the maintenance of the professorship for three years.

New Medical College Building.—A new medical college building is assured for the medical department of the University of Cincinnati, for which Mrs. Mary M. Emory subscribed $250,000 a few weeks ago, on condition that a similar amount be raised before July 1. Dr. Christian R. Holmes announced on that day that $255,000 had been raised, making the total $505,000. The building will be erected on the grounds of the new Cincinnati Hospital and will be connected with the latter by a tunnel. Construction will probably be commenced on the new building early in the spring.

PENNSYLVANIA

Shorter Quarantine.—Under a ruling of the State Board of Health in conformity with an act of the last legislature, a shorter period of quarantine for some contagious diseases is established. Quarantine in the cases of measles, mumps, chickenpox and German measles will be lifted in sixteen days on the application of the physician, who must certify that the patients have fully recovered.

Philadelphia

Hospital Buys Guild House.—The Orthopedic Hospital has purchased for $40,000 the guild house of Epiphany Chapel, where the hospital authorities will erect a building with new departments as a memorial to Dr. S. Weir Mitchell.

Personal.—Dr. Ralph H. Luikert sailed for Serbia, June 26, with the University of Pennsylvania contingent.——Dr. Max J. Stern, who was struck in the eye by a golf ball recently, is reported to be slightly improving and it is hoped that the sight of the eye may be saved.——Dr. Henry K. Gaskill has been appointed visiting dermatologist to the Philadelphia General Hospital, succeeding Dr. Henry Stelwagon, resigned. Dr. Stelwagon had been connected with the dermatologic institution for twenty-seven years.

Child Federation Places Bulletin No. 2 in Alleys.—The second "health bulletin" which the Child Federation is placing in the courts and alleys of the city for the instruction of those who do not read newspapers and have not access to the ordinary helps toward proper living, has been issued. The bulletin has been placed in the iron standards that have been erected for this purpose by the federation, and will be read by the children of thousands of foreigners and interpreted to their families. It deals with the evils of bad housing and is directed to fathers.

SOUTH DAKOTA

Personal.—Dr. Mortimer Hertzberg, Sioux Falls, state bacteriologist and director of the state health laboratory, was operated on for appendicitis at the McKennan Hospital, Sioux Falls, June 25.——Dr. Leonard C. Mead, superintendent of the State Hospital for the Insane, Yankton, recently completed twenty-five years of service to the state in that capacity.——Dr. C. A. Homan has resigned as superintendent of the German Baptist Hospital, Aberdeen, and will go to New Mexico.——Dr. Fred Treon, Chamberlain, was awarded a gold medal at the annual commencement of Columbus College, June 8. The new college infirmary, now nearing completion, is to be named Treon Hall, in honor of Dr. Treon.——Dr. Merlin O. Johnston has resigned as superintendent of the Brown County Board of Health and will resume practice in Aberdeen.——Drs. Jesse D. Whiteside and Fridolin J. O. Kraushaar, Aberdeen, have been appointed members of the Brown County Board of Health.

TEXAS

Dr. Carrick's Mother Dies.—Mrs. Cammie R. Howard, mother of Dr. Manton M. Carrick, Dallas, died in Dallas, July 8. Mrs. Howard has been much interested in the campaign against tuberculosis, was largely instrumental in establishing the State Tuberculosis Sanatorium, and in founding the Woodlawn Hospital for Tuberculosis, Dallas, and has made a bequest of $25,000 in her will for the latter institution.

Hookworm Campaign.—The hookworm campaign in Texas, conducted by the Rockefeller Hookworm Commission during the past three years, was discontinued June 30 on account of the failure of the legislature to make any appropriation for state cooperation. The only cooperation received by the commission was from local appropriations by counties. The commission does not therefore feel called on to continue the work under the circumstances.

Health Boards Organize.—At a meeting called by State Health Officer William B. Collins at Austin, June 28, the Association of Boards of Health of Texas perfected permanent organization at Austin, and elected the following officers: president, Dr. William M. Brumby, Waco; vice presidents, Drs. William E. Spivey, Belton; Charles Tarver, Eagle Pass; William W. Lathan, Crockett; Pearl C. Wray, Jayton, and Robert L. Graham, Cotulla; secretary, Dr. Edgar W. Loomis, Dallas, and treasurer, Dr. James C. Winn, Gilmer. The purposes of the association are the advancement of sanitary science; the promotion of better cooperation and organization of boards of health, and the uniform enforcement of sanitary laws and regulations.

VERMONT

More About the Cancer Meeting.—As a result of the district meetings held throughout the state, June 8 to 11, for the study of cancer, much interest on the subject has been excited among the people of the state. It is proposed to follow up the start that has been made by having the next meeting of each county medical society devoted to the cancer problem and to have cancer as the theme of the oration in surgery at the annual meeting of the state society to be held in Burlington, October 14 and 15. The secretary also expects to publish a bulletin of the papers read at the district meetings, and the details of this new method of interesting simultaneously, the laity and the medical profession, in this important question.

WASHINGTON

New Hospital.—The Dereberry residence, Dayton, has been purchased and will be remodeled as a hospital.

Physicians Organize.—The West Seattle Medical Society was organized, June 10, and Dr. Samuel B. Ross was elected secretary.

Sanatorium for Colored People.—The first state sanatorium for colored people in the state is to be located in Delaware, where a temporary building has been opened with accommodation for twenty patients.

Personal.—Dr. Walter V. Gulick, Tacoma, has been appointed a member of the staff of the Western Washington State Hospital, Fort Steilacoom.——Dr. Herbert W. Stoughton, Granite Falls, has been appointed surgeon and sanitary inspector for the new government railway in Alaska.

WEST VIRGINIA

State Board Appointments.—Drs. Charles M. Scott, Bluefield, and J. McKee Sites, Martinsburg, have been appointed members of the State Board of Examination and Registration of Nurses.——John N. Judy, Petersburg, has been appointed a member of the State Board of Pharmacy and George L. Beerbower, Terra Alta, and D. C. Clark, Blacksville, have been appointed members of the State Board of Dental Examiners.

New Buildings.—Contracts have been let by the State Board of Control for the construction of a school of medicine at the West Virginia University, Morgantown, to cost $57,000. ——The capacity of the State Tuberculosis Sanatorium, Hopemont, near Terra Alta, which now can accommodate sixty patients, will be doubled by August 1, when the three new buildings, now under course of construction, are finished. Dr. Elijah E. Clovis, Terra Alta, is superintendent of the sanatorium.

Health Council Notes.—The West Virginia Public Health Council, which succeeded the State Board of Health, has been unable to obtain suitable quarters in the State House and will be obliged to rent offices.——Dr. Samuel L. Jepson, Wheeling, state health commissioner, presided over the first meeting until Dr. William W. Golden, Elkins, was elected president of the council.——The name of the member from Upshur County, should be Dr. Floyd F. Farnsworth, Frenchton, and not Dr. J. S. Farnsworth as erroneously stated in THE JOURNAL of June 12.——Dr. Samuel L. Jepson has moved from Wheeling to Charleston.

WISCONSIN

Obstetricians Organize.—The Obstetrical Society of Milwaukee, an organization to promote the science and art of obstetrics, was organized in Milwaukee, June 25, with an initial membership of forty. Meetings are to be held on the first Monday of each month.

Addition to Infants' Home.—The Milwaukee Infants' Home and Hospital has raised $20,000 for an addition to the present hospital and expects to raise $10,000 additional. It is planned to build a fireproof addition to the home where a much larger number of babies can be treated.

Marriages Decreased Under Eugenic Law.—Marriages in Wisconsin under the eugenic law are said to have decreased from 21,052 in 1913 to 17,245 in 1914, a decrease of nearly 20 per cent. The secretary of the State Board of Health is inclined to blame business conditions rather than the law for this decrease.

Free Wassermann Test.—Under authority given in chapter 307 of the laws of 1915, the board of control has given authority to make the necessary arrangements with the laboratory of the Psychiatric Institute, Mendota, to give the Wassermann test to any person confined in any state or county institution and to make the test free of charge for any practicing physician of the state who makes application therefore in behalf of any resident of the state. The law also provides that arrangements shall be made in the institute for the free examination of cerebrospinal fluid for any physician of the state.

Personal.—Dr. John M. Dodd, Ashland, was elected secretary-treasurer of the Wisconsin State Board of Medical Examiners, June 30.——Dr. Paul C. Hodges, Ashland, has accepted the chair of physiology in the Harvard Medical School, Shanghai, China.——Dr. Arthur D. H. Thrane, Eau Claire, suffered a slight cerebral hemorrhage, July 1.——Dr. Frank I. Drake, Waupun, has succeeded Dr. Charles Gorst, Mendota, as superintendent of the State Hospital, Mendota. ——Dr. Ellietson H. Rogers, Stevens Point, was operated on in Mercy Hospital, Chicago, June 19.——Dr. Edmund F. Woods, Janesville, has sailed for England for work in war hospitals in France.——Dr. James J. Caveney, Milwaukee, was knocked down by an automobile, June 20, and seriously injured.——Dr. Norman Hoffman has been reelected superintendent of the Wisconsin Tuberculosis Sanatorium, Wales.

CANADA

Manitoba Contribution to Red Cross.—The Manitoba Provincial branch of the Red Cross Society in Canada has collected over $6,000 in that province. The money will be used to supply 121 beds for the Canadian Red Cross Hospital at Cliveden, England, the name of the donor of each bed to be inscribed thereon.

Ryerson Returns to Toronto.—Surgeon-General George A. Sterling Ryerson, M.D., Toronto, president of the Canadian Red Cross Society in Canada, arrived in Toronto, July 9. Speaking of the Canadian hospitals which he inspected while abroad he said they were remarkable for equipment, for efficiency and for good results which have been uniformly obtained. The first one to be established is at Le Touquet. This is a very fine hospital and the staff of doctors and nurses are all Canadians. It has now 1,000 beds instead of 620 formerly. Another is at Le Treport under command of Lieutenant-Colonel Bridges, Ottawa. It is also a finely equipped institution, having also 1,000 beds, all under canvas. A third with accommodation for 400 patients is at Winereux, under command of Lieut.-Col. S. Handford McKee, Montreal. The three field ambulances are under command of Lieut.-Col. Charles M. Foster, formerly of Toronto, with Lieut.-Col. Arthur E. Ross, M.P.P., Kingston, Ont.; Lieut.-Col. Walter L. Watt, Winnipeg, and Lieut.-Col. Duncan A. McPherson, Toronto. All of these officers have been mentioned in dispatches. Another Canadian hospital is being established in Etaples. McGill University Hospital is in France at a point 9 miles east of Calais, while the University of Toronto General Hospital is being retained at Shorncliffe, England, for the present. Dr. Ryerson states the sanitation is remarkable in hospitals, camps and trenches.

Personal.—Dr. Charles R. Bourne, superintendent of the Montreal General Hospital has gone to Three Rivers, Quebec, as sanitary inspector in the army medical service, and will be succeeded at the hospital by Dr. E. T. Kirkland.——Drs. E. Waterson and Alfred T. Bazin, Montreal, have gone to Camp Valcartier for training.——Drs. J. Bryce McMurrich

and Samuel J. N. Magwood, Toronto, have been accepted for overseas service with the army medical corps, and will proceed across the Atlantic to join a British medical unit.——Dr. Edward Ryan, superintendent of the Kingston (Ont.) Hospital for the Insane, strongly endorses the resolution of the Ontario College of Physicians and Surgeons calling on the Ontario government to provide for proper care of wounded soldiers who become affected with nervous and mental diseases. He suggests that the government of Ontario select a competent staff from its provincial hospitals for the insane and that the new hospital now nearly completed at Whitby, Ont., be selected for further treatment of the more advanced cases.——Sir Charles Tupper, M.D., Bart., the first president of the Canadian Medical Association (1867-69) has just passed his ninety-fourth birthday and is living quietly in England in the enjoyment of good health.——Lieut.-Col. Hew R. Duff, M.D., Kingston, Ont., is determined to get to the war somehow. He has just been accepted for overseas service with the Queen's Stationary Hospital. Dr. Duff first volunteered with the first Canadian overseas contingent, but while in training at Valcartier Camp last fall was thrown from his horse and seriously hurt. He recovered and was in readiness to go with the second contingent when he contracted pneumonia. Recovering from that he has been appointed as an overseer of Queen's Stationary Hospital. Lieutenant-Colonel Duff was formerly chief medical officer of the third division of Canadian militia.——Lieut.-Col. George G. Nasmith, formerly bacteriologist and chief of laboratory to the department of health, Toronto, who went abroad with the first Canadian overseas force as sanitary officer, has been put in charge of the hygiene work of a British army corps.——Capt. Fred J. Hart, M.D., formerly of Winnipeg and Regina, who was attached to the fifth battalion of Canadian militia in France, was taken prisoner by the Germans on April 27, as a result of going on alone to aid at the post where wounded had been left. With other prisoners he was removed to Danholm on the Baltic. On June 17 Captain Hart was informed that all the British medical officers would be released. Eight days after the announcement was made he was on his way to London, where he recently arrived in safety. After spending fourteen days' holiday in England he returned to his former duties in France.——Dr. Edwin K. Richardson, Toronto, is mentioned to command the thirtieth battery of Toronto, the new artillery regiment being raised.——Major Thomas Bedford Richardson, Toronto, at present in command of the hospital at Camp Niagara, has been accepted for overseas service.——Capt. George S. Strathy, Toronto, who went abroad with No. 2 Clearing Hospital, is in charge of the infectious cases at Moore Barracks, Shorncliffe, England.——Drs. Herbert A. Bruce, Herbert J. Hamilton, J. Orlando Orr and Harry B. Anderson, Toronto, have been named honorary lieutenant-colonels.

GENERAL

Southwest Physicians to Meet.—The annual meeting of the Medical Association of the Southwest will be held in Oklahoma City, October 12 and 13, under the presidency of Dr. Jefferson D. Griffith, Kansas City.

Confederate Medical Officers Meet.—The eighteenth annual meeting of the Association of Medical Officers of the Army and Navy of the Confederacy, was held in Richmond, Va., June 1 to 3, under the presidency of Dr. Aurelius A. Lyon, Nashville, Tenn. Dr. Stuart McGuire, Richmond, Va., was elected president; Dr. John N. Upshur, Richmond, vice president, and Dr. Samuel E. Lewis, Washington, D. C., secretary.

Insurance Congress.—A world insurance congress is to be held in San Francisco, October 4 to 16, under the auspices of the Panama-Pacific International Exposition. The subjects of chief interest from a medical standpoint to be discussed at the congress are the services performed by life insurance companies, and the conservation of human life. Among the organizations that will participate in the congress are the American Life Convention, the Association of Life Insurance Medical Directors, and the Life Extension Institute.

Ophthalmologists Elect.—At the annual meeting of the American Ophthalmological Society held in New London, Conn., July 6 and 7, the following officers were elected: president, Dr. George E. de Schweinitz, Philadelphia; vice president, Dr. Peter A. Callan, New York City; secretary-treasurer, Dr. William M. Sweet, Philadelphia; councilors, Drs. William H. Wilmer, Washington, D. C.; Richard A. Reeve, Toronto, Ont.; Alexander Quackenboss, Boston; Arnold Knapp, New York City, and William Zentmayer, Philadelphia, and the committee on theses, Drs. William H. Wilder, Chicago; Alexander Duane, New York City, and George S. Derby, Boston. Washington was decided on as the place of meeting for next year and the dates selected were May 9 and 10.

University of Utah Situation.—The preliminary report of the committee of inquiry of the American Association of University Professors on conditions in the University of Utah has been made and printed in *The Nation* and *School and Society*. There are eight findings. It will be remembered that seventeen professors including several in the medical school resigned in March of this year on account of matters in controversy between the president and board of regents of the institution and the faculty. The committee finds, among other things, that criticism in private conversation of the chairman of the board of regents and speaking in an uncomplimentary way of the university administration are not proper grounds for the dismissal of university teachers, and this attitude the committee regards as especially unsuitable in officials of a state university. One of the causes of resignation of members of the faculty was that they had no proper means of bringing their views, when they differed from those of the president, to the governing body of the university. The report states that since the resignations the board has adopted radical and excellently conceived alterations in the plan of administration which should give the University of Utah an advanced position among American colleges in respect to provisions for consultation between faculty and trustees. The committee, however, reserves judgment on the final effect of the plan and regrets to note that the board has refused to apply the new procedure to cases which have recently come before it. The committee also regrets the attitude of the board of regents toward numerous petitions asking public investigation of recent university conditions. It believes the stand of the board that it alone is responsible for the management of the university and its lack of doubt as to the correctness of its past attitude, and the rectitude of its motives and those of the president, fails to take into consideration three fundamental facts, namely, that every institution of public education, and especially a state university, requires for its success the confidence and respect of the public; that this cannot be had without an unflinching readiness to face publicity in regard to all official acts and policies; and that the only effective way to meet serious charges brought by responsible persons is by not merely permitting, but by demanding searching and open inquiry into its methods. Any other course engenders suspicion and hostility and must affect disadvantageously the position and work of teachers in the institution and be a continuing detriment to the university's efficiency.

FOREIGN

Roentgen's Epoch-Making Report.—The Physikalisch-Medizinische Gesellschaft at Würzburg, the local scientific society to which Roentgen presented his first report on the Roentgen rays, has recently had his three communications on the subject reprinted in pamphlet form. The society was founded in 1849, and the Roentgen rays are its crown of achievement.

Physicians Candidates for the Legislature in Portugal.—The *Medicina Contemporanea* of Lisbon says that over fifty medical men are among the candidates this year for the national council (164 members) or the upper house (71 members). The population of Portugal, including the Azores and Madeira, is about 6,000,000. It will be remembered that this new form of government dates from only 1911.

Apothecaries' Hall Examinations.—At a meeting of the General Council of Medical Education and Registration of Great Britian, following the report of a special committee which had been appointed to ascertain the character of the licensing examinations given by the Apothecaries' Hall of Ireland, the following resolutions were adopted: That it appears to the General Council that the course of study and the examinations to be gone through in order to obtain the qualification of Licentiate of the Apothecaries' Hall of Ireland are not such as to secure the possession by persons obtaining that qualification of the requisite knowledge and skill for the efficient practice of their profession.

The Russkiy Vrach.—The Russkiy Vrach of St. Petersburg, which has been received by THE JOURNAL since its foundation in 1901, did not arrive after the war began. The last issue received was dated in July, 1914. Consequently, it was not

reviewed in the Current Foreign Literature department, as in the past, and it was dropped from the list of journals published on page 2175, just preceding the Index, in the issue for June 26, 1915. THE JOURNAL has just received in one package the entire file from Jan. 1 to June 19, 1915. It is impossible to index these overdue numbers, but important items will be reviewed in the Miscellany department. After this has been done, the copies can be lent, as mentioned in the editorial entitled "The Index," June 26, 1915, p. 2138.

Deaths in the Profession Abroad.—L. Tobler, professor of pediatrics at the University of Breslau, aged 38. He has done much research on the physiology and pathology of metabolism in children, but his last work was on the sagittal sinus as site for intravenous injections in infants, summarized in these columns, July 10, 1915, p. 205.——G. Matterstock, professor of internal medicine at the University of Würzburg, aged 66.——G. Haltenhoff, professor of ophthalmology at the University of Geneva, aged 72. He was a collaborator on various ophthalmologic journals and also on the *Revue médicale de la Suisse romande*, and was the official delegate from Switzerland to international scientific gatherings, and president of various medical and specialist societies in his part of the world.——F. H. Marsh, professor of surgery in the University of Cambridge, master of Downing College, and honorary member of the American Orthopedic Association, aged 76. He always took an active part in civic affairs, and the *Lancet* says that he was one of the first to realize from the outset the vast significance of the boy scout movement and help it in every way. His early work as a demonstrator of anatomy laid the foundation for his success as a consulting surgeon.

WAR NOTES

Reception for Second Harvard Unit.—President and Mrs. Lowell of Harvard University gave a reception for the thirty two physicians who sailed for Europe recently as a second Harvard unit for service in the war hospitals.

More Funds for Belgian Red Cross.—Another check for $5,000 for the Belgian Red Cross, the proceeds of the Chicago *Tribune* Belgian war pictures, was turned over to Dr. Cyrille Vermeren, Belgian consul in Chicago, by the Chicago *Tribune*, July 7.

Orthopedic Treatment for Outpatient Crippled Soldiers.—The halls of the National Museum at Munich have been equipped to give courses of orthopedic treatment to all the crippled and maimed soldiers able to take advantage of them. The Medicomechanical Ambulatorium, as it is officially designated, is in charge of Professor Trumpp.

Military Psychiatric Clinic Opened at Treviso.—The city of Treviso in Italy has organized a hospital, with 100 beds, for special treatment of nervous and mental affections among the troops. Professor Zanon, director of the insane asylum for the province has been placed in charge of the new war psychiatric hospital.

German Red Cross Attachés Return Home.—A party of sixty-five surgeons and nurses attached to the German Red Cross, who had been in Kiou Chau, China, for several months, passed through Chicago, June 25, en route to England. The group consisted of ten surgeons in charge of Dr. Hans Houss and fifty-five male nurses.

Personal.—Drs. Harry Plotz and George G. Bohrer, both of the staff of Mt. Sinai Hospital, New York, sailed for Serbia on the Greek steamer *Themistocles*. They took with them a complete bacteriologic outfit supplied by the hospital and will proceed to Nish where they will join Dr. Richard P. Strong, the head of the Serbian sanitary commission.

More Physicians Needed.—The medical council of England, on account of the death of qualified physicians and surgeons owing to the large numbers at present on duty as military surgeons, is considering the advisability of the mobilization of all the physicians of Great Britain that their work may be so arranged as to meet military and civil demands.

Typhus in Germany.—According to the *Münchener med. Wochenschrift*, during the fortnight ended June 5, there were twenty-three cases of typhus at fourteen different points in Germany, all in German soldiers or persons employed at the camps of prisoners. Typhus was also reported among the prisoners at eighteen of the concentration camps of prisoners of war.

Medical Aid for Turkey.—The German Red Cross has sent a unit to Turkey under the leadership of Professor Dürck of Münich. A German-Turkish medical mission has also gone to Scutari where it is installed in the local hospital. The mission is in charge of Drs. Aschheim and W. Schwalbe of Berlin. A branch hospital has been organized by them on the firing line and a base hospital at Rodosto near Constantinople.

Lüthje Succumbs to Typhus.—Another prominent victim to typhus in Germany is reported, Prof. H. Lüthje, director of the medical clinic of the University of Kiel, aged 44. He was regarded as one of the leading clinicians of the younger school and had made numerous contributions to science. He contracted the disease at a concentration camp. The *Deutsche med. Wochenschrift* demands that henceforth only interned Russian physicians should have charge of the typhus patients among the Russian prisoners of war.

Contributions to War Fund.—The following totals of the contributions to the various war relief funds were recently announced:

Red Cross European War Fund	$ 503,176.21
Belgian Relief Committee	1,044,962.00
Serbian Agricultural Committee	115,206.00
British-American War Relief Fund	25,487.00
Polish Relief Fund	36,855.00
Committee of Mercy Fund	225,490.00
Prince of Wales National Relief Fund	111,129.00
American Ambulance Hospital, Paris	400,000.00
Persian War Relief Fund	37,140.63
Fund for the Relief of Women and Children of France	82,924.69
American-Polish Relief Committee	67,390.00
Lafayette Fund for sending kits to French Soldiers	74,343.00
Vacation War Relief Committee	111,689.00

Epidemic Diseases.—A telegram from London, July 6, stated that an alarming outbreak of cholera has appeared in the camps at Debretzen, Hungary, where in a single week there were 1,400 cases and more than 300 deaths among Russian prisoners.——A dispatch from Geneva stated that on June 30 there were two cases of cholera in Vienna, five in Moravia, three in Silesia, two in Cracow, four in Yavprow and twenty-eight in Valovitch.——The Rockefeller Foundation in a statement, June 27, reports that Serbia and Montenegro are still suffering severely from the epidemic of typhus, and that suffering and want are still acute in Serbia, Russia, Poland and parts of Galicia. The foundation has thus far furnished about $85,000 toward the equipment and maintenance of a sanitary commission in Serbia.

Aid for Belgian Physicians.—The report of the treasurer of the committee of American physicians for the aid of the Belgian profession, for the week ending July 10, 1915, lists the following contributions:

S. E. B., Pittsburgh, Pa.	$ 50.00
Dr. George B. Broad, Syracuse, N. Y.	10.00
Dr. Winfred Wilson, Memphis, Texas	11.50
Delta County Medical Society, Escanaba, Mich.	10.00
Receipts for the week ending July 10	$ 81.50
Previously reported receipts	7,544.34
Total receipts	$7,625.84

Previously reported disbursements:

1,625	standard boxes of food at	$2.20	$3,575.00
1,274	standard boxes of food at	2.30	2,930.20
353	standard boxes of food at	2.28	804.84
	Total disbursements		7,310.04
	Balance		$ 315.80

F. F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

The McGill Medical Unit at Shorncliffe.—According to information from a private correspondent the Third Canadian General Hospital (McGill) has been "marking time" at the great camp near Folkstone, waiting for orders to cross the channel for "somewhere in France." There are some 50,000 troops quartered there; forty odd live in each hut where they sleep on boards covered with a blanket. The sanitary squad is very strict about the care given to the huts—of course it is quite proper that a medical unit should set the pace in the matter of hygiene. The swathed figures convalescing on the lawn of a base hospital and the darkness of the big town nearby at night, with the whine of scouting aeroplanes, are the most impressive features of the war thus far seen. From all that is said of conditions in military hospitals in England and in France there is an endless chain of tasks for all workers. In a great hospital of over 2,000 beds near London each nurse has to look after ninety patients, all of them with suppurating wounds. The war has established the efficacy of antityphoid inoculation. Out of the hundreds of thousands of British troops only a few hundred have had typhoid. Canada's 50,000 have all arrived safely. They include every branch of the service.

LONDON LETTER

London, July 2, 1915.

The War

ARRIVAL OF CHICAGO UNIT

The Chicago unit, consisting of a full medical and nursing establishment for a general hospital of 1,040 beds, has arrived in London. Its services have been accepted by the War Office. It consists of thirty-two physicians and a nursing staff of seventy-five. The medical staff includes specialists in all departments, a roentgenologist and a pathologist. The junior members of the unit have been temporarily distributed among the various general military hospitals in London pending their departure for the seat of war. The hospital corps will be kept intact for at least six months. After that the places of those who wish to retire will be filled from the waiting list. All the members have been inoculated not only against smallpox and typhoid fever but also against typhus by the new Plotz vaccine, supplied from the Mount Sinai Hospital, New York.

EARLY OPERATIONS IN MILITARY SURGERY

The necessity for early operation in the case of wounds of certain regions, particularly of the head and abdomen, presents a difficult problem in this war. Several schemes for mobile operating theaters have been devised, but the necessity for absolute rest and good nursing after operation has proved a drawback. The subject has been very fully considered by the heads of the army medical service and the consulting surgeons with the British army, and the decision has been against motor operating theaters. It has been decided that the only way to insure early operation under suitable conditions with proper provision for the after-treatment is to develop the casualty clearing stations immediately behind the firing line and equip them with modern operating theaters. Between Ypres and Bethune, at a distance of from 5 to 7 miles from the trenches a line of nine operating theaters, forming parts of the casualty clearing stations, has been established. It is now possible for a man who has been seriously wounded to be operated on within one or two hours. These stations are just beyond shell fire, and on several occasions have been shelled.

AN OPEN AIR HOSPITAL FOR THE WOUNDED

An open air hospital for the wounded, containing 1,240 beds, has been opened in an athletic ground of Cambridge University. There are about three quarters of a mile of wards split up into ten long blocks of buildings running east and west. Each block faces south and is divided into a western and an eastern ward with sixty beds each. Between the eastern and western wards, but quite continuous, is a central building in which are three bathrooms, lavatories, service rooms, with hot and cold water, sinks, plate heaters and tea infusers, two private wards for special cases, and a room for the use of nurses at night. The wards have only three walls, and are quite open toward the south. They are made of asbestos slabs on wood. Protection against rain is afforded by means of blinds, but these are not always effective. There is fresh air in abundance, but no cold cross and drafty currents. There is no closeness of atmosphere and no smell either from wounds or dressings, and, except in the operating theater, no odor of iodoform or other antiseptics. The patients also enjoy a freedom impossible to grant in a closed ward. Above all, visitors, however numerous, cannot foul or pollute the atmosphere, while patients, nurses and doctors alike remain free from lassitude and headache, the well-known result of breathing air rendered impure by the respiration of human beings. The patients, instead of losing their health and strength during the period of recovery from disease or wound, maintain and even improve in vigor. Bacteria are blown out of the wards, and the usual germ-laden atmosphere of a hospital—the curse of all hospitals in which septic wounds are treated—abolished.

The Health of England

Mr. Walter Long, president of the Local Government Board, speaking on the vote for his department in the House of Commons, said that the health of the country is unquestionably satisfactory, particularly when one remembers the size of the armies that have been unexpectedly quartered on it. The general condition, as regards both unemployment and poverty, is better than it has been for forty years. The difficulty at present is to find labor for the work there is to be done. There has been a curious outbreak of measles among adults, and it has largely affected the soldiers and has brought serious results in the case of some men. There have been 2,500 cases of cerebrospinal disease, but the number is rapidly decreasing. There is, however, a great increase in the price of all the necessaries of life, which is consequent on the scarcity and high price of labor. The prosperity of the country is, of course, on a false basis, for the war means an immense destruction of capital, which is not being replaced. No doubt when the war is over we shall feel the economic loss. This was noticed after the South African War, during which also the country enjoyed unusual prosperity.

PARIS LETTER

Paris, June 24, 1915.

The War

THE INCINERATION OF BODIES ON THE BATTLEFIELD

M. Lucien Dumont, a deputy, has introduced into the Chamber of Deputies a bill for the incineration of the bodies of men and animals on the battlefield for the purpose of avoiding epidemics which might be caused by hasty burials. The parliamentary commission on hygiene approved it, but the Conseil supérieur d'hygiène raised objections based on the difficulties of making numerous incinerations with such means as may be at hand. Experiments have just been made in the presence of a committee composed of Dr. Lemoine, medical inspector-general of the army and professor of hygiene at the Ecole d' application de médecine et de pharmacie militaires du Val-de-Grâce, Dr. Rouget, director of the medical service of the sixth corps, MM. Navarre and Dumont, deputies, Dr. Bordas, professor at the Collège de France, Dr. Thierry, head of the medical service of the city of Paris and others. Two trenches were prepared. In one was placed two bodies which had been buried in coffins at the end of April and had been exhumed the day before for the purpose. These corpses were in a state of relative preservation and were giving off an unpleasant odor. They were sprinkled with a tar preparation made by Dr. Bordas, which markedly reduced the putrid odor. The corpses were surrounded by fuel, which was set on fire at 9:30 a. m. and had burned out at 2 p. m., when no part of the skeletons remained. While it was burning there was no bad odor given off. In the second trench the body of a horse weighing about 500 kilos (about 1,100 pounds) was burned. The fire was lighted at 10:30 a. m. At 2 o'clock the head, the neck and the limbs had disappeared, the splanchnic cavities were open, and there remained a mass of charred flesh which continued to burn without giving off odor. The committee concluded that the incineration of human and animal bodies is practicable with ordinary means; also that improvements in economy of materials and facilitation of operations can be made without loss of effectiveness. Following these experiments the Chamber of Deputies passed M. Lucien Dumont's bill: 1. All unidentified bodies of soldiers found on the battlefield are to be burned. 2. All identified bodies of French soldiers or allies are to be buried according to regulations. No exhumations are to be authorized during the war.

THE TRAINING OF DOGS TO SEARCH FOR WOUNDED

I mentioned in a previous letter (The Journal, Dec. 5, 1914, p. 2055) the creation of the Association française pour le dressage du chien de guerre. This association proposed to outline scientifically the logical training for each class of dogs, basing its methods of rapid education on psychologic laws. It also contemplated the organization of a kind of war school for dogs and a normal school, so to speak, for trainers and demonstrators of training. Four different methods were proposed for the indication of the presence of a wounded man. 1. The dog is taught to remain near the wounded man when he is found, barking to call the attention of the ambulance attendant. The barking of the dog, however, may call the attention of the enemy to the presence of the wounded man and that of the litter bearer close by. 2. The dog is taught to bring back the wounded man's cap. This gives good results; but the dog, in its attempt to seize a cap held on the head by a chin strap, may bite the wounded man. Then the man may have lost his cap or he may wear a helmet. 3. By Captain Bonnard's method a piece of cloth, intended to be removed by the wounded man, is fastened to the dog's collar by a slipknot. But if the wounded man is in a faint when the dog finds him, this plan does not work. 4. The dog held in leash leads the attendant toward the wounded man. This

method has the advantage of being rapid, but it cannot be employed in regions where there is undergrowth. M. P. Hachet-Souplet, director of the Institut de psychologie zoologique, believes it might be possible to combine the last three methods. Only very docile dogs are used. They are not trained to snatch the cap away when the strap resists. They are also furnished with a square of cotton cloth for the wounded man to take. If a dog returns without his bit of cloth and without cap this shows that he has found a wounded man who has no cap or whose cap is too firmly held by the strap. If he returns with a cap and with his bit of cloth, the wounded man has fainted. In regions without undergrowth the dog is led on a leash, thereby gaining much time.

PURIFICATION OF WATER DURING WAR TIME

At the last meeting of the Association générale des hygiénistes et techniciens municipaux, interesting papers were read regarding hygiene in war time. M. E. Bonjean, head of the laboratory of the Conseil supérieur d'hygiène publique de France, spoke on the purification of drinking water by Javelle water and sodium and calcium hypochlorites. Then M. L. Gaultier, an engineer, read a paper on the filtration of water and its sterilization by ultraviolet rays, a method applicable to campaign use. A large part of France, he said, now has all its drinking water contaminated. There is not a single portion of the territory from Paris to the Vosges, to the Ardennes and to the North Sea that may be considered free from the risks of contamination of the underground water. The use of the ultraviolet rays may render great services by giving safe water to the invaded districts. It is necessary that the system selected be as simple as possible, that it offer a guarantee of safety and that it be capable of application in all cases. The sterilization stations comprise (1) a motor engine; (2) a set of rapid filters, and (3) a group of sterilizers. The motor engine is of the agricultural type, the model of which is now so well known in the country throughout the world. This motor runs a pump capable of delivering a volume of 5, 10 or 20 cubic meters of water to be sterilized per hour and a continuous current dynamo of 110 volts capable of furnishing the current to the burner of the ultraviolet ray sterilizer. According to the importance of the station, there are two, three or four sand filters, all alike. To avoid the inconvenience of an overheavy apparatus, the ordinary silicious sand, which weighs 1,700 kilos per cubic meter, is replaced by an artificial sand made of a kind of lava and weighing only 600 kilos per cubic meter. The sterilizer is composed of an enameled sheet-iron vat containing, according to the importance of the station, two, three or four quartz mercury-vapor lamps. The arrangement is such that the water undergoes the influence of the lamp three times and before passing from the apparatus it receives the rays from at least two lamps.

THE MEAT SUPPLY AND THE INTRODUCTION INTO FRANCE OF CATTLE FROM NORTH AMERICA

The government has recently made arrangements with Great Britain for 240,000 tons of refrigerated meat for the use of the troops, to be delivered previous to February, 1916. A bill recently passed by the Chamber of Deputies authorizes the annual purchase of 120,000 tons of frozen meat (THE JOURNAL, June 19, 1915, page 2082). The latter measure, however, will not come into full effect for four or five months, as it will be that long before the transportation companies can install on their boats the necessary refrigerating apparatus. Meanwhile the scarcity and dearness of meats remains an urgent question. The agricultural committee of the Chamber of Deputies has therefore approved the proposition of M. Cosnier authorizing the acquisition and importation of foreign cattle on the hoof, especially from North America. Canada and the states bordering on the Great Lakes can furnish a satisfactory supply, since the sanitary condition of the meat is guaranteed. With special sanitary precautions cattle might also be imported from Argentina and Brazil.

The Osiris Prize

As I mentioned in a previous letter (THE JOURNAL, July 3, 1915, p. 42) the Osiris prize was awarded for antityphoid vaccination, 50,000 francs ($10,000) to Professor Vincent and 50,000 francs to Professors Chantemesse and Widal. Dr. Chantemesse has devoted his share to the preparation and gratuitous distribution of antityphoid vaccine in France. Dr. Widal has presented his share to the Assistance publique as a contribution to the construction and the maintenance of the laboratory of the Cochin Hospital.

Deaths

Edgar H. Thornton, M.D. University of Oregon, Portland, 1892; of Portland, Ore.; aged 49; formerly a member of the American Medical Association; a member of the Oregon State Medical Association; local surgeon to the Southern Pacific Railway; surgeon to the Good Samaritan Hospital, Portland; who was bitten by a rabid dog early last year and suffered a nervous breakdown after taking the Pasteur treatment; died in a sanatorium in Montavilla, Ore., June 21.

Asa Augustus Hamilton, M.D. Indiana Medical College, Indianapolis, 1872; aged 64; a member of the Indiana State Medical Association; once coroner of Grant County; for six years a member of the city council of Marion, and for nine years a member of the board of education; died at his home in Marion, June 26. The Grant County Medical Society, at a special meeting, appointed a committee on resolutions and decided to attend the funeral in a body.

Francis Augustus Temm, M.D. Missouri Medical College, St. Louis, 1890; aged 48; also a graduate in pharmacy; from 1890 to 1896, lecturer on materia medica and pharmacy in his alma mater, and since 1894 instructor in gynecology in the medical department of St. Louis University; anesthetist, gynecologist and attending physician to St. John's Hospital, St. Louis; died at his home in St. Louis, June 26.

Riley Ambrose Axtell, M.D. New York University, New York City, 1849; aged 91; who practiced in Kalamazoo, Mich., until 1858, and then devoted himself to farming; a resident of South Dakota since 1887 and for the last seven years a homesteader of Bison; died in Yankton, S. D., April 8, three days after a fall in which he sustained a fracture of the hip.

James Webster Knapp, M.D. Syracuse (N. Y.) University, 1881; aged 62; a Fellow of the American Medical Association; president of the board of trustees of the Canastota (N. Y.) Public Library; president of the Canastota Hospital and formerly a member of the board of education; local surgeon of the New York Central Lines and the Oneida Railroad; died suddenly at his home in Canastota, June 26.

Leslie G. Rhodes, M.D. State University of Iowa, Iowa City, 1881; aged 63; a Fellow of the American Medical Association; of South Haven, Mich.; formerly president of the Kalamazoo Academy of Medicine; while answering a professional call near Covert, was instantly killed by the overturning of his automobile.

Anton Theodore Remer, M.D. Barnes Medical College, St. Louis, 1900; aged 53; professor of obstetrics and clinical lecturer on diseases of children in the Dallas (Tex.) Medical College; who recently established a maternity hospital in Dallas; died at his home in that city, July 2, a month after a surgical operation.

Harry Addison Williams, M.D. University of Toronto, Ont., 1908; aged 45; of Hamilton, Ont.; who was conducting the practice of Dr. Victor Ross during the absence of the latter from the city; was shot and killed in his surgery, July 2, by a former patient, who afterward shot himself dead.

Leroy Jones Randall, M.D. Louisville (Ky.) Medical College, 1874; Bellevue Hospital Medical College, 1890; aged 75; a member of the State Medical Association of Texas, and for many years a practitioner of Wise County; died at the home of his granddaughter near Springtown, Tex., June 24.

Ernest McDonald Tayman, M.D. Denver and Gross College of Medicine, Denver, 1908; aged 37; a Fellow of the American Medical Association and formerly president of the Dawson County (Neb.) Medical Society; died at his home in Cozad, Neb., June 27, from tuberculosis of the lungs.

Robert Earl Swigart, M.D. Cleveland College of Physicians and Surgeons, 1898; of New York City; aged 41; director of the medical department of the United Fruit Company's Steamship Service; died in the Knickerbocker Hospital in New York City, June 28, from cerebral hemorrhage.

Joseph Redfearn, Jr., M.D. College of Physicians and Surgeons in the City of New York, 1873; aged 66; a Fellow of the American Medical Association; local surgeon at Marlboro, Mass., for the Boston and Albany Railroad; died at his home in Marlboro, July 1, from cerebral hemorrhage.

Pryor W. Fitts, M.D. Atlanta (Ga.) Medical College, 1883; aged 55; formerly a member of the Medical Association of Georgia and secretary-treasurer of the Meriwether County Medical Society; a practitioner and druggist of Dalton; died at his home in that place, June 24.

Lorrain Anderson Lemmon, M.D. Medical College of Ohio, Cincinnati, 1886; aged 57; a Fellow of the American Medical Association and a well-known practitioner of Columbiana County, Ohio; died at his home in East Liverpool, Ohio, June 29, from cerebral hemorrhage.

Robert J. Tomb, M.D. Jefferson Medical College, 1854; aged 84; a veteran of the Civil War, in which he served as assistant surgeon and surgeon of volunteers; a practitioner of Armagh, Pa., for fifty-four years; died at his home in that place, July 1, from cerebral hemorrhage.

William Gibson Floyd, M.D. University of Maryland, Baltimore, 1878; aged 63; a practitioner and druggist of Roanoke, Ala.; for several years county physician of Randolph County; died in a sanatorium in Atlanta, Ga., June 26, several days after a surgical operation.

Reuben Escher Dinger, M.D. Western Pennsylvania Medical College, Pittsburgh, 1897; aged 39; formerly local surgeon of the Pennsylvania System at New Bethlehem, and president of the local board of health; died suddenly in Detroit, June 18, from heart disease.

George E. Jordan, M.D. College of Physicians and Surgeons, Baltimore, 1891; aged 56; a member of the Medical Society of the State of North Carolina and a practitioner and druggist of Gibsonville; died at his home in that place, June 20, from cerebral hemorrhage.

William F. Baskerville, M.D. Tulane University, New Orleans, 1889; aged 49; a member of the Arkansas Medical Society; major, M. C., Arkansas N. G.; local surgeon at Booneville for the Rock Island System; died at his home in Booneville, May 6, from pneumonia.

Edmond U. Bourg, M.D. Tulane University, New Orleans, 1871; aged 66; for many years a practitioner and druggist of Labadieville, Lafourche Parish, but since 1906 a practitioner of New Orleans; died at his home in New Orleans, June 23, from heart disease.

Peter Edwin Tovey, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1883; aged 60; a member of the Illinois State Medical Society; supreme medical examiner of the order of the Magi; died at his home in Galesburg, June 23, from angina pectoris.

Clinton Bradford Herrick, M.D. Albany (N. Y.) Medical College, 1880; aged 55; a member of the Medical Society of the State of New York and a resident of Troy; died at his winter home in Sharpes, Fla., March 23, from carcinoma of the bladder.

George Joseph Studer, M.D. Indiana Medical College, Indianapolis, 1907; aged 31; formerly a member of the Indiana State Medical Society; first police surgeon of Fort Wayne, Ind.; died at his home in that city, July 1, from nephritis.

George Henry Zimmerman, M.D. Medical College of Virginia, Richmond, 1880; aged 58; for many years in charge of the medical department of the Southwest Virginia Improvement Company; died at his home in Pocahontas, Va., June 26.

Wilbur B. Payne, M.D. University of Virginia, Charlottesville, 1892; Tulane University, New Orleans, 1893; aged 48; a member of the Medical Society of Virginia; died at his home in Covington, Va., June 24, from disease of the stomach.

Thaddeus F. Hamer, M.D. University of Marburg, Germany, 1884; aged 70; for many years a practitioner and druggist of Lincoln, Ill., but since 1912 a resident of Los Angeles; died at his home in that city, June 24.

John Daniel Mitchell, M.D. New York University, New York City, 1876; aged 62; founder and for six years superintendent of the Steuben Sanitarium; died at his home in Hornell, N. Y., June 27, from heart disease.

Archibald Robert Brown, M.D. University of Southern California, Los Angeles, 1907; aged 38; a Fellow of the American Medical Association; died at his home in San Dimas, Calif., June 11, from pneumonia.

Horace F. Livingood, M.D. Jefferson Medical College, 1882; aged 66; of Womelsdorf, Pa.; in 1904 controller of Berks County, Pa.; died in Jefferson Hospital, Philadelphia, June 25, from postoperative pneumonia.

Theodore Frelinghuysen Wolfe, M.D. College of Physicians and Surgeons in the City of New York, 1868; aged 72; author of a number of works on literary shrines; died at his home in Succasunna, N. J., June 14.

William Green Downing, M.D. Missouri Medical College, St. Louis, 1874; for thirty-eight years a practitioner of Solano County, Calif.; died at his home in Suisun City, Calif., June 30, from heart disease.

Hanna J. Price, M.D. Woman's Medical College of Philadelphia, 1881; of New York City; for many years a practitioner of Chester, Pa.; died at the home of her son in Harrisburg, Pa., July 5.

Thomas G. Shannon, M.D. University of Nashville, Tenn., 1855; aged 83; for many years a practitioner of Nashville; died at the home of his daughter in Murfreesboro, Tenn., June 16, from senile debility.

Walter Frank Hammitt, M.D. University of Nebraska, Lincoln and Omaha, 1913; aged 30; of Union, Ia.; while fishing in the Iowa River near his home, June 21, was swept over a dam and drowned.

John Jordan Lenhart, M.D. Eclectic Medical Institute, Cincinnati, 1871; University of Buffalo, 1878; aged 70; died at his home in Bemus Point, N. Y., March 26, from acute dilatation of the heart.

Henry Otto Hoffmann, M.D. University of Wurzburg, Germany, 1872; aged 76; a member of the Medical Society of the State of New York; died at his home in Brooklyn, June 24, from diabetes.

Joseph F. Roselle, M.D. University of Louisville, Ky., 1891; aged 48; formerly president of the municipal board of health of Alexandria, S. D.; died suddenly in his office in Spencer, S. D., June 28.

Palmer Coville, M.D. Cleveland University of Medicine and Surgery, 1857; aged 82; a pioneer practitioner of Belding, Mich.; died at his home in that place, about June 29, from cerebral hemorrhage.

James J. McConkie, M.D. Starling Medical College, Columbus, Ohio, 1864; aged 80; for twenty-seven years a practitioner of Iowa; died at the home of his son in Cedar Rapids, June 27.

Orrin C. Shaw, M.D. University of Buffalo, N. Y., 1873; aged 67; for more than forty years a practitioner of Chautauqua County, N. Y.; died at his home in Cassadega, N. Y., June 28.

Philip Bronk Collier, M.D. Long Island College Hospital, Brooklyn, 1856; aged 71; a member of the Medical Society of the State of New York; died at his home in Kingston, N. Y., May 23.

George Myron Nesbit, M.D. College of Physicians and Surgeons, Chicago, 1888; aged 52; of Waterloo, Ia.; died suddenly in a livery barn in that city, June 25, from cerebral hemorrhage.

Franklin Russell Timmermann, M.D. University of Michigan Homeopathic Medical College, 1880; aged 61; died at his home in Hastings, Mich., June 26, from the effects of a carbuncle.

Henry Middleton Stuart, M.D. Medical College of the State of South Carolina, Charleston, 1857; aged 80; of Beaufort, S. C.; died in Quincy, Fla., March 11, from senile debility.

J. A. White (license, Texas, Sixth Judicial District Board, 1900), aged 47; a practitioner since 1898; died suddenly at his home in Clarksville, Tex., from acute gastritis, April 18.

Benjamin F. Stalker, M.D. University of Louisville, Ky., 1873; aged 69; a veteran of the Civil War; for four years township trustee; died at his home in Borden, Ind., June 25.

George P. Sword, M.D. New York Homeopathic Medical College, New York City, 1889; aged 53; died at his home in Huntington, N. Y., July 2, from disease of the kidney.

Lewis Sherman, M.D. New York University, New York City, 1887; aged 72; a homeopathic practitioner and pharmacist; died at his home in Milwaukee, July 2.

Allen W. Ashburn, M.D. Miami Medical College, Cincinnati, 1872; aged 67; a veteran of the Civil War; for forty-three years a practitioner of Batavia, Ohio; died at his home in that place, June 27.

Thomas Huston Shy, M.D. University of Louisville, Ky., 1907; aged 33; a member of the Missouri State Medical Association; died at his home in Centerville, Mo., June 18, from heart disease.

George Carmel Rees, M.D. Physio-Medical Institute, Cincinnati, 1885; aged 64; of Corry, Pa.; died in the Buffalo General Hospital, June 6, after an operation for strangulated umbilical hernia.

Edward Annon Carpenter, M.D. Albany (N. Y.) Medical College, 1869; aged 68; died at the Cambridge Home for Aged People, Cambridge, Mass., June 24.

Edgar Vernon Van Norman, M.D. Cleveland University of Medicine and Surgery, 1870; aged 77; formerly of Springfield, Ohio; died at his home in San Diego, Calif., June 8.

Joseph B. Meek (license, Indiana, 1897), aged 62; a physician and druggist of Centerville, Ind.; died at the home of his brother near Centerville, June 12, from pneumonia.

August Ferdinand Richter (license, Connecticut, 1893), aged 64; a practitioner for thirty-nine years; died at his home in Bridgeport, Conn., June 22, from epilepsy.

Charles Sumner Porter, M.D. Iowa Eclectic Medical College, Des Moines, 1889; aged 61; died at his home in Creston, Ia., April 27, from general breakdown.

Mary Anna Priest, M.D. Fort Wayne (Ind.) College of Medicine, 1880; aged 72; formerly of Toledo, Ohio; died at the home of her daughter in Portland, Ore.

Louis J. Leger, M.D. University of Louisville, Ky., 1882; aged 56; a practitioner of Gulfport and Hansboro, Miss.; died at his home in the latter city, June 3.

Orrin Hugh Stutson, M.D. Starling Medical College, Columbus, Ohio, 1898; aged 40; died at his home in Columbus, June 12, from tuberculosis.

J. T. Smith, M.D. Medical College of Georgia, Augusta, 1850; aged 85; died at his home in Evans, Ga., about June 11.

Cyrus Smith, M.D. Rush Medical College, 1872; aged 92; died at his home in Glanford, Ont., March 7.

Marriages

COL. PHILIP FRANCIS HARVEY, M. C., U. S. A. (retired), to Mrs. Kathryn Patterson Talmadge, both of Washington, D. C., June 22.

WILLIAM WHITLOCK MATTSON, M.D., Rochester, Minn., to Miss Hazel Fletcher of Seattle, at Mayowood, Rochester, June 23.

RALPH HERBERT LUIKERT, M.D., Norfolk, Va., to Miss Marie Ryon of Philadelphia, in New York City, June 24.

MILES AXE COPELAND, M.D., Birmingham, Ala., to Miss Leonora Armstrong of Demopolis, Ala., June 16.

LEE WILSON EDWARDS, M.D., Omaha, to Miss Grace Bailey of Chicago, at Menomonie, Wis., June 30.

JOSEPH COOK BUNTEN, M.D., Osage City, Kan., to Miss Gladys Kirchner of Burlingame, Kan., June 26.

MABELLE SPAULDING WATSON, M.D., Ashtabula, Ohio, and Charles Edward Gilbert of Cleveland, June 28.

WILLIAM JAMES YUTSKI, M.D., Reading, Pa., to Miss Myrtle L. Crump of Camden, N. J., June 28.

LIEUT. JOHN H. H. SCUDDER, M. C., U. S. A., to Miss Adelaide Smith at Nogales, Ariz., June 22.

ASST. SURG. CECIL S. O'BRIEN, U. S. Navy, to Miss Inez Mischon Demonet, at Baltimore, April 21.

CAPT. CHARLES M. WALSON, M. C., U. S. Army, to Miss Bonnie Miller of Salt Lake City, June 2.

VICTOR CLARENCE VAUGHAN, JR., M.D., Detroit, to Miss Elsbeth Hosig, in Duluth, Minn., June 28.

GEORGE RICHARDS MINOT, M.D., Boston, to Miss Marian Linzee Weld of Milton, Mass., June 29.

JAMES ISRAEL TYREE, M.D., Kansas City, Mo., to Miss Eugenia Franz of Joplin, Mo., June 26.

MAX MORRIS, M.D., Rochester, N. Y., to Miss Minette Goldberg of Hamilton, Ont., June 27.

HARVEY K. FLECKENSTEIN, M.D., Baltimore, to Miss Isabella Griffith of Gaithersburg, Md., June 12.

ASST. SURG. FREDERICK CERES, U. S. N., to Miss Madeline Fliege of New York City, June 29.

WILL WILSON JACKSON, M.D., Vinita, Okla., to Miss Helen Beals of Salem, Ind., recently.

JESSE B. PASCHALL, M.D., to Miss Mary Addie Browder, both of Fulton, Ky., recently.

DANIEL CONNELLY, M.D., Kingston, N. Y., to Miss Louise Lau of Cleveland, recently.

PETER JOSEPH CHRISTENSON, M.D., to Miss Clara Mulligan, both of Chicago, June 30.

ROBERT SORY, M.D., to Miss Olyn Prather, both of Madisonville, Ky., June 23.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TONGALINE AND PONCA COMPOUND

Report of the Council on Pharmacy and Chemistry

The Council, having considered "Tongaline," "Tongaline Tablets," "Tongaline and Lithia Tablets," "Tongaline and Quinine Tablets" and "Ponca Compound Tablets," found these preparations ineligible for New and Nonofficial Remedies and authorized publication of the following report.

W. A. PUCKNER, Secretary.

TONGALINE

Tongaline (Mellier Drug Co., St. Louis) is a fancy name given to what is essentially a sodium salicylate mixture. The air of mystery created by the name permits the manufacturers to make claims for the product which would be ludicrous if the medical profession was fully conversant with the very ordinary character of the preparation.

Tongaline receives its name from tonga, an inert, long-discarded mixture of various barks and herbs said to be gathered and prepared by Fiji Islanders. Its constituents evidently tend to vary with the collector. The history of the introduction of this indefinite combination of simples is thus given in THE JOURNAL, May 10, 1913.

> "A supply of the crude drug was carried to England by a man who had lived for a short time in the Fiji Islands and it was placed in the hands of a retail house in London. This occurred about 1879. In 1880, two English physicians of repute published laudatory articles on the therapeutic value of tonga in neuralgia and rheumatism. This created a demand for the drug which extended to the United States."

Time showed that tonga was inert therapeutically, and authorities on pharmacology now no longer notice it. As the Council previously reported[1] the indefinite character of the mixture should, alone, be sufficient to exclude it from practical therapeutics. During the temporary popularity of tonga, the proprietary mixture Tongaline was put on the market for physicians' use by the Mellier Drug Company, St. Louis. In this, tonga was named as the active ingredient. The commercial interests thus involved have faithfully nourished and kept alive the "tonga" myth.

In a recent advertising booklet "The Therapeutic Properties of the Ingredients of Tongaline," the virtues of tonga, blue cohosh, colchicum, jaborandi and salicylic acid are discussed. The label of a recently purchased bottle reads:

> "Tongaline contains Tonga, Cimicifuga Racemosa, Salicylate of Sodium (the salicylic acid being made from pure natural oil) Colchicum and Pilocarpin."

It will be noticed that Tongaline is "made from the pure, natural oil." In fact, the statement is repeated in red ink, in large letters running across the face of the label, thus emphasizing the alleged importance of this assertion. In this connection it is only necessary to recall that it has been proved clinically, chemically and physiologically that there is absolutely no difference between the salicylic acid made from the natural oil and the synthetic.

The formula was thus commented on in the article previously quoted from THE JOURNAL:

> "Tongaline . . . is essentially a preparation of sodium salicylate. . . . The Mellier Drug Company realized the impossibility of creating any marked demand for a nostrum unless it had some real drugs in it—hence the presence of the salicylates. What the actual composition of Tongaline is, no one but the manufacturers know. At one time the following was given as the formula:
>
> | | |
> |---|---|
> | Fluid Tonga | 30 grains |
> | Extract of Cimicifuga Racemosa | 2 grains |
> | Sodium Salicylate | 10 grains |
> | Pilocarpin Salicylate | 1/100 grain |
> | Colchicin Salicylate | 1/500 grain |
>
> "These amounts refer to the quantity of drugs in each fluidram of the preparation. Whether the nostrum still has this composition we do not know, but assuming that it has, it is quite evident that sodium salicylate is the essential and active ingredient."

1. Reports of the Council on Pharm. and Chem., 1912, p. 40.

The therapeutic indications given on the label of the bottle are:

"Rheumatism, Neuralgia, Grippe, Gout, Nervous Headache, Sciatica, Lumbago, Malaria, Tonsilitis, Heavy Colds, Excess of Uric Acid, and wherever the use of the Salicylates is indicated."

In a recent booklet this semisecret salicylate mixture is recommended, not only in conditions in which salicylates are indicated, but also combined with aconite for rheumatic fever, with benzoate of soda in the treatment of "grippe," with potassium bromid in nervous headaches, with gelsemium, glycerin and whisky for "heavy colds," with ammonium chlorid, stramonium and cimicifuga in "rheumatic dysmenorrhoea," and even with mercury biniodid as a treatment of syphilitic eruptions!

"When administered with good judgment, Tongaline exerts a stimulating effect upon every organ of elimination; cleansing the complex sewerage system and putting it into working order. When this is done, the sluggish blood current begins to flow more freely; the lymphatic and glandular systems to give up and carry off the toxic products, so long retained . . ."

TONGALINE TABLETS

Then because of a "desire to put Tongaline in a more compact and convenient form," the same concern puts on the market Tongaline Tablets. Whether Tongaline Tablets are of the same composition, the doctor who prescribes them is not advised. In this form we have Tongaline and Lithia Tablets, and Tongaline and Quinin Tablets. Presumably those who are attracted by the word "lithia" are sufficiently uncritical to be content with the statement that:

"The addition of Lithia to Tongaline presents a most useful combination which does not rely upon its action on the kidneys alone as is the case with Lithia salts or Lithia waters as administered . . ."

And the foregoing quotation, be it remembered, is for the information of the medical profession! Tongaline and Lithia Tablets, we are informed, are:

". . . particularly indicated for certain diseases which are caused by deposits of urates in the joints and kidneys, and can be used with much benefit for many people who indulge in generous or intemperate habits of living."

Tongaline and Quinine Tablets are also exploited without statement of composition. The promoters are probably justified in feeling that physicians who prescribe quinin in combination with "Tongaline" care little about the dosage.

It is unnecessary to discuss the silly claims made for Tongaline and its combinations, although it is worth while to point out that the prescribing of such nostrums by physicians is an imposition, if not a fraud, on the public.

PONCA COMPOUND

Ponca Compound, also made by the Mellier Drug Company, St. Louis, is a "female weakness remedy" in tablet form. The name suggests that "ponca" is a medicinal substance, and, in fact at one time, "Ext. Ponca" was named as an ingredient. The nature of "Ext. Ponca" was apparently never explained. It is now replaced in the "formula" by "senecin," and the only information concerning the composition at present given is:

"Ponca Compound Tablets Contain Extract of Mitchella Repens, Senecin, Helonin, Caulophyllin and Viburnin."

This "formula" is practically meaningless, not only because the amount of each ingredient is not stated, but also because "senecin," "helonin," "caulophyllin" and "viburnin" are in themselves variable mixtures of unknown composition.[1]

Presumably, "senecin," "helonin," "caulophyllin" and "viburnin" are extractives of some kind prepared respectively from senecio aureus (life root), helonias dioica (false unicorn), caulophyllum thalictroides (blue cohosh) and viburnum prunifolium or opulus (black haw or cramp bark). These are, one and all, practically inert drugs. There is no reason to believe that any or all of them can have any beneficial influence in the many and varied conditions for which Ponca Compound is advertised.

1. See Report of the Council on Pharmacy and Chemistry on "Resinoids and Concentrations," The Journal, Nov. 13, 1909, p. 1655.

The following are excerpts from the advertising matter:

"Ponca Compound is a remedy of a very beneficial character for Functional, Uterine and Ovarian troubles, which will respond to internal treatment, especially when digital examination or surgical interference is undesirable."

"Ponca Compound is also valuable during gestation and after parturition."

"Uterine Alterative for Leucorrhoea, Dysmenorrhoea, Amenorrhoea, Metritis, Endo-Metritis, Menorrhagia, Metrorrhagia, Irregular Menstruation, Subinvolution, Painful Pregnancy."

It is recommended that Tongaline and Ponca Compound and all their preparations be held in conflict with Rule 1, in view of their semisecret and indefinite composition; with Rule 6, for the grossly exaggerated therapeutic claims made for them; with Rule 8, because of their misleading names, and with Rule 10, in view of their unscientific character as irrational combinations. It is also recommended that this report be published.

A MEDICAL IMPOSTOR IN THE TRANSVAAL

In the *South African Medical Record* of April 10, 1915, there is a diverting account of "A Remarkable Medical Imposture" which, for clever impudence, compares favorably with the Köpenick incident which excited so much ire in Germany, and which was only exposed through certain bank frauds of considerable magnitude. Although the British Medical Council has run down several men who practiced on the registration of deceased physicians or even on the diplomas of living doctors, it is difficult to get the necessary data quickly at the Cape Province, on account of its great distance from the English metropolis. The case in point occurred recently at Johannesburg and, says the *Record*, was "so cleverly worked that it is difficult to see what any medical council could do to prevent similar fraud, short of filing photographs or finger prints," although it is recommended that one ought to be "scrutinisingly suspicious of every man with particularly suave and engaging manners, until one has found out all about him." These characters too are "invariably more or less specialists in diseases of women." Our impostor began to operate in the Rand by publishing in the *Sunday Times* of July 5, 1914, the following announcement of his marriage and family connections:

Gibson—Stafford.—At St. Mary's, Johannesburg, on July 1st, by the Very Rev. the Rector, Dr. A. J. Gibson, eldest son of the late Mr. Justice John W. Spencer-Gibson of Canterbury, to Elizabeth Ethel, eldest daughter of James Stafford, "Talbagar," Inglewood, Queensland.

The father of the bridegroom was described as a "Judge of the Supreme Court of New South Wales," although no such name could subsequently be found in the Colonial Office Lists. The real Dr. A. J. Gibson was listed in the Medical Directory of 1912-13 as a well accredited practitioner at Victoria, British Columbia, and had actually registered in the Transvaal in 1903, where he practiced for about two years, subsequently leaving the country to settle down in London. The false Gibson evidently knew these facts, which he utilized to his advantage. Although finally suspected of being a convict from Pretoria or America, he was either an actually qualified or formerly qualified practitioner, or else a man of unusually good medical training, who even performed surgical operations. While he did not mix freely with his fellow practitioners or seek their society, he contrived to impress several members of the profession with his skill and success in diagnosis and operations, building up a big reputation in the eastern suburbs, and an income of between $15,000 and $20,000 a year. He specialized in gynecology, making a hit with his diagnoses and cures, had a private hospital in Belgravia, sent cases to the Kensington Sanatorium, was liked for his kindness, courtesy and cleverness in paying poor men's fees and even backing bills for doctors themselves, while he was robbing banks of thousands by means of forged government bonds and, toward the last, even ran up huge tradesmen's bills on the strength of worthless checks, which he even had the effrontery to offer to the bank—on the eve of his exit from the scene, on March 4.

All this fakery "got over," simply because the real Dr. Gibson, having moved from London to Canada, did not reply to the ordinary statutory letter from the Secretary of the

Medical Council, asking if he were still practicing. Of the personality of the faker, the *Record* says:

There is no doubt that "Dr. Gibson" possessed an outstanding personality. With keen, intellectual features, to quote one acquaintance, his physical appearance at once attracted attention, but apart from that he was a man of wide reading, and had a profound knowledge of his fellow men. He was deeply versed in medical lore, and so far as one is able to judge, never once gave himself away in any of his frequent consultations with well-known doctors.

To an acquaintance Gibson stated that he had been in Johannesburg six or seven years ago, *apropos* of which it is understood that recently he operated upon a detective who was after him on his previous visit. Although the police had his photograph and his record, and were desirous of coming into close touch with him he does not seem to have been much worried. It is related of him, in fact, that on one occasion he went to Marshall Square to lay information against a native, and that this was not the only time he personally approached the police.

Another remarkable characteristic of the man was his profession of deep religious convictions. So great indeed was his interest in ecclesiastical topics that more than once he visited the house of a well known minister of religion, and had arguments with him. He also took a keen interest in the hospital ordinance brought before the provincial council by the labour party, and discussed details with the promoters.

How he robbed the banks is more a matter of criminal history. Suffice it to say that it was done in a manner that disarmed suspicion, and he was able to get a long start of the police. He left Johannesburg on March 4 or 5, and to the last kept up his intercourse with several doctors, even wiring to one of them from Delagoa Bay to the effect that he was "having a fine time."

From that moment both he and his wife had vanished as though the earth had swallowed them, and, in spite of the utmost efforts of the police, have not been seen. A suggestion was made to the *Sunday Times* that they have been spirited away by a steam yacht owned by an international gang of crooks, to which the "doctor" belonged, but no confirmation of this can be obtained.

Correspondence

Amblyopia

To the Editor:—In THE JOURNAL, June 12, 1915, p. 2001, in "Medical Notes on England at War," Sir William Osler writes:

"A very puzzling case which interested us greatly at Clevedon was a man with monocular amblyopia, without visible changes in the fundus or in reflexes; there was in the left eye complete defect of vision, except a very small area in the temporal field."

On page 203 of the *Medical Times*, July, 1901, occurs the following:

"A form of amblyopia shows itself in infancy and childhood, is common in middle age, but is most prevalent in old age. It comes in but one eye, may exist for years unknown and be confused with amaurosis and other amblyopias. Loss of vision may be slight or extreme, may be rapid in its course or years developing. In a few cases there is unnoticeable cockeye. The outer side of the field of vision suffers least, probably because the corresponding portion of the retina never sees objects which can be seen by the sound eye. This seems to show that this blindness is suppression of function to avoid double vision, dissimilar or blurred images."

N. B. JENKINS, M.D., New York.

[COMMENT.—The term "amblyopia" is unfortunately so elastic that it is used to describe conditions of defective vision varying in degree from a slight blurring to complete amaurosis or blindness. The case referred to by Sir William Osler might come under one of three headings: (1) amblyopia from hemorrhage; (2) feigned amblyopia, or (3) functional or hysterical amblyopia. Under the first group it must be assumed that the patient lost a large quantity of blood from some battle wound. It is not stated whether or not this was the case. It is now believed by most ophthalmologists that in most cases of amblyopia following profuse hemorrhage, some other abnormal condition is present besides the loss of blood, to account for the visual defect. In this connection, too, it is interesting to note that the literature on this subject emphasizes the relatively infrequent occurrence of amblyopia following hemorrhage, among soldiers wounded in battle; and when it is seen it is almost always bilateral.

Feigned amblyopia or malingering might for a time escape the attention of the army surgeon, but with the many infallible tests which the ophthalmologist has at his disposal, any attempt at this form of deception would be discovered at once.

There remains the third form of functional or hysterical amblyopia, to which this case apparently belongs. Occurring as it did "under the extraordinary stress and strain of trench fighting," which in the present war has been the cause of so many cases of insanity and milder degrees of brain disturbances among the troops at the front, it would not be very strange to come across at least a few cases of this form of amblyopia. It must be remembered that in an amblyopic eye the degree of visual defect bears no relation to the ophthalmoscopic findings. Good visual acuity may be present with pronounced fundus changes, and vice versa. If enough vision were left in this case to permit a perimetric examination of the color fields, and these were found to be reversed, the diagnosis would be absolute. In any event, careful search would probably disclose some other hysterical stigmata, such as pseudoparalytic ptosis, reflex photophobia or blepharospasm.]

Depage to His American Colleagues

To the Editor:—I enclose literal translation of a letter just received from Dr. Depage which he wishes to have published. I think it should be printed in THE JOURNAL, as it is addressed to the medical profession in this country.

RICHARD H. HARTE, M.D., Philadelphia.

My dear Colleagues:—I have received from a large number of you, and notably from the Committees which you have formed, the most touching tributes of sympathy and of condolence for the catastrophe of the *Lusitania* in which my wife lost her life.

These tributes are so numerous and so unanimous that I wish to express to you publicly my appreciation of them. I address myself to you, my dear colleagues, as the authorized representatives of the humanitarian sentiments which so honor the great American nation.

You all know, as I wrote to you when my wife left for America, for what purpose she accepted the mission which the Red Cross confided to her. In the presence of the unexampled miseries of which we have been the prey, she had resolved to solicit your fraternal assistance. You gave her that largely, I should say "joyously" if the word could be used in these times.

The letters my wife wrote to me in the course of her mission told me how you worked for her, and revealed to me the extent and generosity of your projects for our wounded. Your hearts were open to our appeal; your country did not wait to come to our assistance. Powerful America wished to take under her protection our little people, tortured but always valiant.

My great sorrow does not permit me to reply as I wish I might to each one of you. Only today have I been able to measure—thanks to the letter of your compatriot, Dr. Houghton—the extent of the gratitude I owe, to him first for having risked his life in trying to save that of my wife, and after that to you all for your devoted help in our common work. Under the strain of my emotion, the sentiment of thankfulness is the only one to which at this moment, I am able to give expression. Permit me to do so with all my heart.

ANTOINE DEPAGE, La Panne, Belgium.

[COMMENT.—Dr. Antoine Depage, it will be remembered, was president of the International Surgical Congress which met in New York last year, and is at the present time chief of the Belgian Red Cross. Mme. Depage was in the United States soliciting help for that small part of Belgium which still remains free. Contributions from this country for the Belgians have gone through Holland, consequently none

reached this part of Belgium, since they would have had to go through the German line. In the short time Mme. Depage was in this country, she collected approximately $150,000. Hearing that her younger 16-year-old son had also enlisted, she was hurrying home in the quickest manner, hence taking the *Lusitania* to greet him before he went to the front.]

Pulsus Alternans and the Sphygmomanometer

To the Editor:—Several contributions to the literature of pulsus alternans with respect to its determination by the sphygmomanometer have recently been made in this country and abroad without due recognition of Hoffmann and Rehberg, who described the method in 1906 and 1909, respectively, the former in the *Münchener medizinische Wochenschrift* (liii, 1977), and the latter in the *Zeitschrift für klinische Medizin* (lxviii, 247). Rehberg in his summary says:

> There are two methods of rendering manifest a latent pulsus alternans: (a) by artificially increasing the frequency; (b) by increasing the pressure proximally from the artery being investigated. This not only can increase the size of the pulse waves but may also render evident any retardation in the small pulse. (Als besondere Ergebnisse hebe ich hervor: 1. dass es 2 Methoden gibt, den latenten Pulsus Alternans zur Wahrnehmung zu bringen: (a) durch die (hier nicht angewendete) künstliche Erhöhung der Frequenz; (b) durch Erhöhung des Druckes zentralwärts von der untersuchten Arterie, wobei sich nicht nur ein Grössenunterschied der Pulswellen, sondern auch eine Verspätung des kleinen Pulses bemerkbar machen kann.)

Rehberg points out also the necessity of graphic records in the determination of alternation of the pulse.

PAUL D. WHITE, M.D., Boston.

New York Polyclinic Hospital Not Responsible for Method of Treating Inoperable Cancer

To the Editor:—In view of the publicity which has been given by the lay press to a method of treating inoperable cancer, and the use that has been made of the name of the Polyclinic Hospital therewith, the management of the Polyclinic desires to disclaim any connection with or responsibility for this method of treatment. The cases that have been treated in the hospital have been received as the private cases of physicians who have the privilege of sending patients to the pay wards and private rooms of the hospital.

JOHN A. WYETH, M.D.,
A. R. ROBINSON, M.D.,
CHARLES H. CHETWOOD, M.D.,
D. BRYSON DELAVAN, M.D.,
JOHN A. BODINE, M.D.,
WM. H. KATZENBACH, M.D.,
W. VAN V. HAYES, M.D.,
New York.

Board of Management, Polyclinic Hospital.

Inadequate Supply of Long Catheters

To the Editor:—At various times I have urgently needed a soft rubber catheter 18 inches in length and have been unable to obtain one in Chicago. It would seem to me probable that other physicians may have found themselves at times in the same dilemma. Would you kindly suggest a means for the relief of this situation? Most of those obtainable are from 16 to 16½ inches in length.

SANGER BROWN, M.D., Kenilworth, Ill.

The Cigar Cutter

To the Editor:—The public drinking cup has become a rare article, which is certainly a good thing. There is another public nuisance which to me seems a greater evil, and that is the cigar cutter, for one can rinse out the cup but not the cutter. One has only to stand in a cigar store for a few minutes, when he will notice a man buy a cigar, roll it around in his mouth, and put the end—possibly with the saliva dripping from it—into the public cutter and clip it off. This is repeated many times, and the cutter must get covered with germs—much more so than the drinking cup, which can be rinsed.

Many states have abolished the public drinking cup, but I know of none that has done away with the public cigar cutter. Were it abolished it would be another move in the right direction.

PAUL E. WIESEL, M.D., Garfield, Wash.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OUTSIDE CONTAMINATION OF MILK BOTTLES

To the Editor:—I have written to a number of health commissioners and editors of medical publications in reference to milk infection. The danger of outside milk bottle contamination has been pointed out as a source of milk infection. The average milk bottle passes through many hands, is placed in filthy racks in the wagon, and is placed under door-steps exposed to dust and other infectious matter before reaching the buyer.

Will you kindly inform me what is the importance of outside milk bottle contamination in milk infection?

Do you approve of adopting means to protect the entire milk bottle from contamination, to prevent the possible danger of milk infection?

A. H. BRAECKLEIN, M.D., Baltimore.

ANSWER.—In the reported instance of milk-borne infection apparently due to bottle contamination (THE JOURNAL, June 22, 1912, p. 1941) it is not possible to distinguish between inside and outside contamination. There can be no doubt, however, that contamination of the inside of the bottle is by far the more dangerous. While it is evident that the outside of any food container should be kept as clean as practicable, it is questionable whether regulation requiring a special cleanliness of the outside of milk bottles could be effectively enforced.

UNGUENTINE

To the Editor:—What is the status of "unguentine," a preparation put out by the Norwich Pharmacal Company of Norwich, N. Y.? If the composition of the preparation has been given in THE JOURNAL, please refer to the proper number. A fellow practitioner extols the compound highly in the treatment of burns and especially sluggish skin ulcers, but as he is unable to give its composition, I argue he is shooting in the dark, and that there are other official preparations of known composition which are preferable.

J. B. H. WARING, M.D., Fort Logan, Colo.

ANSWER.—An analysis of unguentine made in our chemical laboratory was published in THE JOURNAL, March 27, 1909, p. 1047. From that analysis it was concluded that unguentine contained as its essential constituents aluminum acetate and zinc oxid, or more probably impure zinc carbonate (the entire quantity of both not exceeding 5 per cent.), phenol (less than 1 per cent.) and aromatic oils (amounting to not more than approximately 1 per cent.), the ointment base being, in the main, petrolatum. It contained no ichthyol or, if any, but the merest traces. An examination of the advertising claims made at the time showed that the claims of composition had varied from time to time. The report concluded:

> In Unguentine we have, therefore, another proprietary "specialty," regarding the composition of which indefinite, false or misleading statements have been made — this irrespective of protestations of honesty by the firm.

No further examination of unguentine has been made since publication of the foregoing report. It is quite possible, therefore, that the unguentine of today differs from that which was the subject of analysis. The argument that one using unguentine is "shooting in the dark" would seem to be correct.

SENSITIZED AND PLAIN VACCINES

To the Editor:—Please advise me if there is any real value of the sensitized typhoid vaccine over the plain.

J. HUTCHINGS WHITE, M.D., Muskogee, Okla.

ANSWER.—Sensitized vaccines are made by exposing suspensions of bacteria, for example, typhoid bacilli, to the action of the corresponding immune serum which has been heated

in order to destroy the complement. The excess of serum is removed by centrifugation, and the bacteria suspended in salt solution. Sensitized vaccine may be prepared with living as well as with dead bacteria, but in the case of typhoid vaccine it would hardly be justifiable to use living sensitized bacteria. There would be a possibility of either infecting the individual or causing him to become a carrier, notwithstanding Besredka's assertion that the sensitized living typhoid bacilli used by him are wholly harmless, and especially as it has not been established that any kind of sensitized vaccine has any greater value than plain vaccine. It is true that advantages are claimed for sensitized vaccine, but there does not as yet seem to have been sufficient experience to warrant any definite conclusions.

Medical Education and State Boards of Registration

Kentucky Report

Dr. A. T. McCormack, secretary of the Kentucky State Board of Health, reports that 5 candidates were licensed through reciprocity from March 11 to June 14, 1915. The following colleges were represented:

College	Year Grad.	Reciprocity with
Rush Medical College	(1903)	Illinois
Louisiana Medical College	(1904)	Indiana
Starling-Ohio Medical College	(1912)	Ohio
Ohio-Miami Medical College	(1913)	Ohio
University of Tennessee	(1914)	Arkansas

Kansas February Report

Dr. H. A. Dykes, secretary of the Kansas Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 9, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, of whom 4 passed and 1 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Howard University	(1914)	86
Georgia College of Eclectic Medicine and Surgery	(1913)	88
Bennett Medical College	(1911)	77
University of Minnesota	(1913)	83
FAILED		
Meharry Medical College	(1914)	62

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
University of Illinois	(1914)	Illinois
Louisville Medical College	(1894)	W. Virginia
University of Minnesota	(1890)	Minnesota
American Medical College	(1913)	Missouri
Washington University	(1901)	Missouri
Memphis Hospital Medical College	(1901)	Missouri

Arkansas Eclectic May Report

Dr. C. E. Laws, secretary of the Arkansas Eclectic Medical Board, reports the written examination held at Little Rock, May 11-13, 1915. The total number of subjects examined in was 12; total number of questions asked, 120; percentage required to pass, 75. The total number of candidates examined was 22, of whom 21 passed and 1 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
California Eclectic Medical College	(1911)	79.1
Georgia Coll. of Eclectic Med. and Surg.	(1914) 89.2½ (1915)	79.6
Eclectic Medical University, Kansas City	(1913) 75.6, 75.9; (1914), 77.3; (1915) 75.4, 76.5, 76.9, 77.5, 77.9, 77.9, 78.2, 80.1, 80.3, 81.1, 83.2, 83.2, 83.4, 83.7.	
Eclectic Medical College, Cincinnati	(1915)	83.4
FAILED		
Eclectic Medical University, Kansas City	(1915)	*

* No grade given.

Book Notices

SANITATION IN PANAMA. By William Crawford Gorgas, Chief Sanitary Officer, Panama Canal, Surgeon-General, U. S. Army, Major-General, U. S. Army. Cloth. Price, $2 net. Pp. 298, with illustrations. New York: D. Appleton & Co., 1915.

It is repeating what practically every physician knows to say that the building of the Panama Canal was made possible through the work of Chief Sanitary Officer Colonel (now Major-General) Gorgas and his associates—and under "associates" in this instance must be included Reed, Carroll, Agramonte, Henry R. Carter, Finley and Lazear, as well as all those who worked with General Gorgas in the Canal Zone.

In his book, "Sanitation in Panama," General Gorgas tells how two of the most unhealthy places on earth were transformed into healthy places—one of them into a territory in which the death rate is as low as that of any healthy city in the United States—an accomplishment which fifteen years ago would have been declared impossible. The work which General Gorgas and his associates did in Panama was based on still more important work that had been done before, namely, the working out of the cause of the transmission of yellow fever and malaria. General Gorgas recognizes this fact and gives a most excellent account of the work that finally solved the problem. It is probably the best and the truest description of the discovery of the method of transmission of yellow fever that has yet been given, for, while not a member of the Reed Commission, in Havana, yet as chief sanitary officer of that city, General Gorgas was in daily touch with the work and knew practically its every detail. Nearly all of the first half of the book is devoted to this matter and to the history of yellow fever in general.

The rest of the book is devoted chiefly to an account of the methods employed in the Canal Zone, and to the almost insurmountable difficulties that had to be overcome in the fight against the various diseases to which the white people especially were subjected in the Canal Zone; for it was not yellow fever alone: almost as much dreaded was malaria and, to a less extent, other tropical diseases—even leprosy. Those who know General Gorgas will not be surprised at the modesty with which he discusses his relation to the work. And he does not hesitate to give credit to others: in his account of yellow fever work he gives due recognition to the most important work of Dr. Henry R. Carter, of the Public Health Service, which had more to do with solving the problem of transmission of the disease than is always remembered.

The book is written for the layman, and therefore in non-technical language; nevertheless it contains such valuable information regarding tropical diseases, especially yellow fever, that every medical man will find it of decided value. The habits of mosquitoes, the methods by which they carry disease, the sanitation of construction camps, the methods of securing civilian cooperation, are all brought out without breaking the thread of the narrative. The subject-matter is presented in a most interesting manner, enlivened by anecdotes and by amusing as well as pathetic incidents that make the book read almost like a novel.

LECTURES ON THE HEART. Comprising the Herter Lectures (Baltimore); A Harvey Lecture (New York), and an Address to the Faculty of Medicine at McGill University. By Thomas Lewis, M.D., F.R.C.P., D.Sc., Physician City of London Hospital. Cloth. Price, $2 net. Pp. 124, with 83 illustrations. New York: Paul B. Hoeber, 1915.

This small volume contains five lectures. Three of these were the Herter lectures, one is the Harvey lecture, and the fifth an address delivered at McGill University, Montreal. The Herter lectures are "The Method of Electrocardiography Exemplified," "The Relation of Auricular Systole to Heart Sounds and Murmurs," and "Observations Upon Dyspnoea, with Especial Reference to Acidosis." The Harvey lecture is on the "Excitation Wave in the Heart." The McGill lecture is entitled "Observations Upon Cardiac Syncope." Emphasis is constantly laid on the close relation that should exist between the laboratory and the bedside. "The Method of

Electrocardiography Exemplified," for instance, is largely taken up with showing how clinical cardiograms may be interpreted in the light of duplicate tracings made on animals when the cardiac conditions are seen or are produced at the will of the experimenter. A certain tone of authority that is manifest is warranted, for of English writers, at least, on the newer phases of the diseases of the heart, there is none whose thorough work, much of it pioneer in character, ranks higher. In these lectures as in his other writings, Lewis presents his subject in a wonderfully clear and direct manner.

HANDBOOK OF OBSTETRICS FOR STUDENTS AND JUNIOR PRACTITIONERS IN INDIA. By Kedarnath Das, M.D., Teacher of Midwifery, Campbell Medical School. Cloth. Price, $3.75. Pp. 612, with 298 illustrations. Calcutta: Butterworth & Co., 1914.

This book is rather large for a so-called handbook. The author notes that it is the first book of this character issued in India. He has been compelled, therefore, to use illustrations prepared for other texts; but in the selection of these he has shown apparently excellent judgment. The author's views, and they seem to be based on practical experience, are stated clearly and concisely. In a special chapter entitled "Hints on Obstetric Surgery," there are numerous suggestions which seem exceptionally apt.

Miscellany

Rural Sanitation Dependent on Evolution as Well as Economic Progress

Progress in rural sanitation and hygiene may not depend on economic progress and material prosperity, though these are important factors. It may depend quite as much on the evolution of mind of the persons affected and their acceptance of higher standards of living. In an address before the American Public Health Association at Jacksonville, Dowling recounted some experiences in the rural districts of Louisiana among the poor farmers and likewise among some of those who were more prosperous. He found many poor farmers with most wretched living conditions, with lack of the ordinary conveniences which contribute to health, with poor food, of small variety, badly prepared, and with a seeming lack of any ambition to better conditions. A reliance on "patent" medicine "dope," as he calls it, was the chief source of hope in the many ills which beset them. Among the more prosperous class there was some improvement in the surroundings, but in many cases apparently no inclination to adopt modern comforts and conveniences or to follow out the simplest rules of hygiene and sanitation. Rural life is still in the transitional stage in the United States, and in this respect much of the South is still very backward, though constantly improving. According to Dowling, more than material prosperity or the efforts of individuals or organizations will be necessary to secure improvement.

"Progress in the economic features of community life means progress in the social; they are interrelated," he says; "but advancement, either economic or social, depends on growth or evolution of many kinds. This precludes the hope that you or I or any organization can do very much toward the substitution and acceptance of higher standards by the adult population. In a democracy, the people accept whatever appeals to them as pleasing or useful; in a country governed by a monarch, acceptance of measures is implied. It is easier in the latter to abolish a custom detrimental to health or to substitute the sanitary for the insanitary. It doesn't matter so much in the older countries whether the people accept a new point of view; but here it is the all-important element of a change of action. Ideas direct activities and conduct. Ideals of life and action are among the most dynamic forms of ideas; therefore, the viewpoint of the resident of the rural hope is the key to regeneration. It follows that the school is an institution to which we must look. Proper standards of living must be instilled into the minds of the children and training given in habits both of thought and action. In this our rural schools heretofore have failed. They did not recognize properly their whole function. At present, in many states, schools of the rural districts are being reorganized; effort is being made to adapt the course, the teaching and the subject-matter to conditions. It will require long and patient experimentation before a system entirely fit can be established, for it must embody the cultural as well as the vocational; it must apply the universal to the unit; and it must keep the ultimate in sight yet not lose sight of practical adaptation to the needs of the present. No people in the world's history ever grappled with a greater problem."

The Enteric Administration of Benzene

Since the establishing of the treatment of various forms of leukemia with benzene, numerous methods have been devised for the preparation of capsules for the enteric administration of this substance. In a recent issue of the *Druggists Circular* (May, 1915, p. 289), Kuever has described a simple and apparently satisfactory technic. Benzene is rarely administered alone. It is usually combined with an equal volume of olive oil. Ordinarily hard gelatin capsules were found to give the best service. The body of the capsule is placed in a holder made of a pasteboard box or cover through which perforations of suitable size have been made. The right size capsule is selected to contain the proper dosage in minims. The mixture of equal volumes of benzene and olive oil is dropped into the body of the capsule, and the cap placed on it to prevent evaporation. The cap is sealed to the body by holding it in warm water, 40 C. (104 F.), for a fraction of a second. The superfluous water is shaken off and the capsule held between the thumb and index finger a moment to permit the two parts to stay well together. Care must be taken to prevent oozing of benzene between the two parts, as this will prevent a proper application of the coating. Keratin is applied first. The capsule is rolled in this substance after it has been moistened by immersion in glacial acetic acid for an instant. The excess of keratin is then brushed off with the finger tips after it has had time to set, about fifteen minutes. The capsules are then exposed to a draft of air for an hour to aid evaporation of the acetic acid and dry the keratin. The salol is melted on a waterbath at a temperature not exceeding 45 C. (113 F.). The capsules are thoroughly chilled meanwhile in a refrigerator. The warm salol is placed in a wide-mouthed precipitating flask of 250 c.c. The chilled capsules are put into the warm salol, while the flask is being violently rotated until all the salol has cooled and crystallized. After the salol coating has been applied, the capsules are returned to an ice-bath or refrigerator and again chilled until the salol sets. The dose of the benzene-olive oil is from 3 to 5 minims of each substance to begin, and these dosages are given three times a day after meals. The 5-minim dose is continued for a week or two, or perhaps three, but is gradually increased up to 7 minims, then 8, 10, 15, etc., until finally the patient receives 30 minims of each ingredient, or 60 minims of the mixture three or four times a day. Naturally, when the large dosages are reached, it is necessary to use three or four capsules to hold the required amount.

Acquisition of Lip Reading

E. B. Nitchie in the *Volta Review* suggests some requirements for the acquisition of the art of lip reading, an accomplishment of the greatest value to deaf persons and also most desirable for persons who are slightly or considerably hard of hearing. Several habits are fundamental and must be acquired by the lip reader. One of the first is the habit of watching the mouth always, even by persons who hear fairly well. While the eyes and the rest of the face are expressive, yet if the eyes are watched, many slight and determining movements of the lips and tongue will be missed. Habits of concentration and attention are also essential. The art will be practiced in time without effort, but in the beginning

requires a good deal of conscious endeavor. The eye must be trained to make the required associations quickly, but it is not to be expected that it will catch all the movements in every word and syllable. Only a part of them are caught; but by the synthetic ability of the observer, the speaker's thought can be understood completely. Eye training and mind training are the two lines that are important in learning lip reading. In eye training mirror practice is important, and in this neither vagueness nor exaggeration should be employed; just natural speech; and as the person practicing knows what he is saying, by this means he gets the correct movements and associations. In the beginning almost any words may be used, but it is advisable to start with words of one syllable. Then use longer words, watching carefully the lips in each part of the word, noting particularly the movement in the transition from one portion of the word to another. The method of sentence practice is similar to that for word practice. In practicing clauses, repeat them as many times as there are words in them, each time concentrating the attention on a succeeding word. Observe each word as a whole, and do not try to see the individual elements. In practicing this art, the mind must be trained at the same time by endeavoring to seize the sense of the remark rather than the individual elements or words. In fact, it is said that in rapid conversation, the way to get every word is to get them from the thought and not the thought from the words.

Society Proceedings

COMING MEETINGS

Washington State Medical Association, Tacoma, July 20-22.

PHILADELPHIA COUNTY MEDICAL SOCIETY

Meeting held June 9, 1915

DR. SENECA EGBERT, in the Chair

CANCER

Some Latest Thoughts on Carcinoma

DR. JOSEPH MCFARLAND: In recent years new methods of investigation have been developed, and all have been applied to cancer with most interesting results. The first of these is the method of implantation. This method of investigation with mouse cancer has shown that the tumors can be carried successfully through many successive generations of mice, and has revealed many facts of surprising interest, though unfortunately it has not led to much increase of knowledge in regard to the etiology of cancer. The same is true of the cultivation of cancer tissue in vitro; we can make cancer tissue grow, but we cannot start a piece of tissue growing in such manner that it will become carcinoma and continue as such when transplanted into animals.

Some interesting experiments have come to light with regard to certain chemical substances which have an influence on epithelial cell multiplication. Thus, inunction with sudan III produces a condition resembling cancer, but when the inunctions are stopped the patient recovers. It has recently been shown that in coal tar derived from gas distillation there is an element possessing a marked influence on the growth of epithelium. This, however, though it accelerates cell multiplication in vitro and in paraffin cancers, has not been shown experimentally to have the power to start a cancer. We hear much of the "precancerous stage" of cancer. Cancer of the stomach is more common in those who have had gastric ulcer, but ulcer can account for only a few cases. Carcinoma of the cervix is more common in women who have borne children, but may occur in others. Cancer of the breast is probably more frequent in cases with "chronic cystic mastitis"; but this accounts for not more than 20 per cent. Therefore in these so-called precancerous conditions we have to do with conditions which lead to cancer just as traumatism does, just as heredity does, just as other things do, and are not in themselves very important. Miss Maud Slye of Chicago has shown that cancer can be bred into or out of families of mice and that its occurrence follows the mendelian law of inheritance. It is not improbable that cancer in the human being will ultimately be found to be a heritable condition inherent in the germ protoplasm as the result of the occurrence of cancer in remote ancestors.

Relation of Diet to Transplantable Tumors

DR. GORDON SAXON: The Mendel and Osborne maintenance diet which is composed of a pure fat, a pure protein, a pure carbohydrate and a salt mixture has a depressing action on tumor growth. In over 1,000 "takes" in animals on a normal diet and on the Mendel and Osborne diet, there was not one instance of metastasis to distort organs. With diet rich in cholesterol, however, there was an increased percentage of "takes" and a remarkably high percentage of metastases. The litter unit was employed in all of the experiments, since there is greater uniformity of susceptibility, or immunity encountered, in the litter than in individuals.

Factors Operative in the Production of Cancer of the Skin

DR. JAY F. SCHAMBERG: Cancer of the skin rarely, if ever, develops from healthy integument, from a cutaneous surface which is free of antecedent pathologic defects. We see cancer of the skin develop from moles or nevi, either pigmented or unpigmented; from chronic fissures, old ulcers, scars, warty surfaces and especially keratoses. Exposure to sunlight is perhaps one of the most important factors in the development of cancer of the skin. The following observations tend to support this view: (1) The seats of predilection of cancer of the skin are the face and hands; (2) classes of individuals much exposed to sunlight, such as sailors and farmers, show the highest incidence of cancer of the skin; (3) in full-blooded negroes who have a protracted layer of pigments, keratoses and cancer of the skin of the face are excessively rare, indeed, almost unknown; (4) children, afflicted with that rare affection xeroderma pigmentosum, exhibit a hypersusceptibility to the action of the solar rays, and usually succumb to cancer of the skin before the age of 5; (5) there is a strong analogy in the Roentgen-ray cancers due to an allied form of radiant energy. Cancer of the skin may also be due to the repeated action of mechanical and chemical irritants. Workers in soot (chimney sweeps) and tar and crude paraffin workers are peculiarly susceptible to skin cancer. The long-continued or excessive ingestion of arsenic may lead to multiple cancer of the skin. A study of the causes of cancer of the skin argues against parasitism and in favor of mechanical, chemical and biochemical irritation as the productive factors.

What do Nonoperative Measures Offer in the Treatment of Malignant Disease of the Skin

DR. FRANK CROZER KNOWLES: The nonoperative treatment may be considered under: (1) internal treatment; (2) prophylaxis; (3) refrigeration; (4) caustics; (5) electrolysis; (6) fulguration; (7) Finsen light; (8) Roentgen rays, and (9) radium. Arsenic has been found to have an inhibitory influence in some of the malignant growths of the skin. Prophylaxis has an important bearing, particularly in the avoidance of local irritation, traumas, excessive smoking and of too long and too constant exposure to the solar rays. Emphasis should be laid on the early removal of warts, moles, nevi and various keratoses, found in old age skin, by such simple measures as trichloracetic acid, electrolysis, carbon dioxid snow, or fulguration. Refrigeration, electrolysis and fulguration are suggested only in the removal of small and very superficial epitheliomas. Finsen rays also should be limited in use to this type of growth. The three caustics recommended are potassium hydroxid, zinc chlorid and arsenous acid. Roentgen therapy has yielded excellent results. The Roentgen rays have certain advantages over other forms of treatment in that the surface is unbroken and the treatment is painless, is applicable in locations inacces-

sible to operation, dressings are unnecessary and the cosmetic results are excellent. Objections to caustics are pain, inflammatory reaction and the limited area to which they can be applied. Many patients rebel at the thought of the knife, disfiguring themselves with a facial dressing for weeks. Owing to the great expense of radium, the Roentgen-ray treatment for suitable cases of skin cancer—those without glandular enlargement or mucous membrane involvement—is the natural deduction.

What Does Surgery Offer the Patient With Carcinoma of the Stomach?

DR. JOHN B. DEAVER: What surgery can offer in this condition depends on an early diagnosis and immediate and radical operation, with removal of the lesion, be it already carcinoma or gastric ulcer, which is a forerunner of carcinoma. There are no pathognomonic signs of cancer of the stomach in the operative stage. It is my routine practice to open the stomach if diagnosis is impossible by inspection and palpation of its wall. The surgeon has not yet been born who by sight or touch can always differentiate between carcinomatous infiltration and the inflammatory infiltrate of a chronic ulcer; between glandular enlargement due to metastases and that due to hyperplasia. Medical treatment has never cured a case of this disease, and while the operative mortality is from 18 to 20 per cent., the mortality without operation is 100 per cent. Cancer of the stomach causes about 1 per cent. of the total death rate; less than 1 per cent. of these cases come to the surgeon and less than one quarter are suitable for operation. In the treatment of benign ulcer of the stomach it is my practice to excise the ulcer when surgically possible, which is practically always the case. That a percentage of gastric ulcers do undergo malignant change has been proved. Wilson and McDowell have shown that out of a series of 399 pathologic specimens examined by them the following was found: 4.8 had ulcer with doubtful cancer; 15.8 had ulcer with positive cancer; 36.8 had ulcer with advanced cancer; 42.6 had cancer with doubtful ulcer. In 60 per cent. of cases of cancer of the stomach the tumor is situated in the pyloric region and is easily accessible. The fundal cases are usually extensions and are practically inoperable. A jejunal fistula is all that can be promised, and it is a glaring sign that some one has blundered. Absence of free hydrochloric acid has not been in my experience a constant sign. The Roentgen ray, in the hands of an expert, is of great value in early diagnosis. The uncertainty which always hovers about any clinical idea of the pathologic variety of cancer which may be found even in the evident case will practically always justify exploration in the hope that something may be done. The operation of choice is subtotal gastrectomy with wide excision of involved glands and a posterior gastro-enterostomy. Polya's new operation of bringing a loop of jejunum through the transverse mesocolon and anastomosing it to the proximal end of the cut stomach in its entirety holds out the possibility of a greater area of extirpation. The end-results of operation on carcinoma of the stomach at present suffer from the fact that in most cases operation is performed in the late incurable stages. Finally, I would say operate in all cases of cancer of the stomach; operate early, and if unable to make a diagnosis, operate to make it.

What do the Newer Methods of Treatment Offer the Patient With Malignant Disease of the Uterus?

DR. JOHN G. CLARK: From the literature the inevitable conclusion is drawn that radium offers excellent possibilities in the treatment of superficial growths and for the relief of hemorrhage and malodorous discharge in extensive cases; but no extreme degree of optimism can be gathered from these reports, since they all point to the fact that the deeper metastases are not reached by the radium, on which hangs the fate of the patient. Five years ago I reached the conclusion that when the deeper iliac glands are the seat of metastases, attempt to cure these patients is futile. Thus far we must conclude that there is not sufficient evidence to justify the substitution of radium for surgical measures in cases which are operable. As a forerunner to, and a follower up of an operation, it is unquestionably advisable. In inoperable cases it should invariably be tried, for apparent cures have occurred in some very advanced cases, and in those cases not ultimately cured there is a decided amelioration of symptoms. The occasional production of necrosis need not deter one from the use of radium, as this occurs in the advanced cases. In chemotherapy thus far no measure has proved of real value in the treatment of cancer. The treatment of the disease by cancer extracts and by the various serums has proved to be worse than valueless. Percy of Galesburg is an ardent advocate of the use of desiccating heat for the cure of inoperable carcinoma. He uses a cold cautery at a comparatively low degree of heat for a sufficient length of time to destroy superficial and deep-seated growths. I believe the majority of surgeons in the United States attempting to use this method assume that he employs a cauterizing heat. Against this use of his cautery he protests very strongly and prefers to speak of it as a "cold cautery." I believe the method holds out definite promise of favorable results if Percy's rules are accurately followed. I feel, however, that radium offers equally good chances for cure without the greater danger of mortality incident to this operation. From this review of the newer therapeutic methods in the treatment of cancer we may conclude that definite progress has been marked, but that as yet a universal panacea in the treatment of cancer has not been discovered or even forecast by the most optimistic champions of the methods here mentioned.

Gross Pathology of Malignant Disease of Breast

DR. C. B. LONGENECKER: Some tumors of the breast are undeniably benign, but others are malignant from the beginning. There is, moreover, no guarantee that the benign tumors will remain so; certain types of cysts and the scars of a chronic mastitis are especially liable to take on malignant change under the influence of irritation and age. It is the part of prudence to regard all growths with suspicion and to do early radical operation in the majority of cases. The so-called precancerous conditions are in reality often cancerous from the beginning. When cancer of the breast has advanced to such an extent that the typical signs are easily observed, it is approaching the final stage and should not be a subject for diagnosis. Occasionally we see cancer under the microscope which shows the beginning of the breaking through of the basement membrane and proliferation of epithelial cells. This may be coincident with a small palpable lump in the breast which, on section, shows unmistakable evidence of early malignancy in the milk glands. When the case is sufficiently far advanced, the microscopic section shows the general infiltration of the surrounding tissue and of the deeper structures; one small lump of the breast shows the beginning breaking through of the capsule and general disarrangement of the cell formation around the ducts, and likewise a collection of cells occupying a position deeper down in the pectoral muscle, while the only thing palpable is a small lump in the breast. A patient who showed a not very large involvement of the breast, with slight retraction of the nipple, showed, on section, a general involvement of almost the entire breast. One patient, discovering a lump in the breast two years ago, consulted a physician who advised waiting for two months "to see what would happen." Instead of going back to him the patient consulted a second physician who gave the same advice. She failed to return to him. Later she turned up at one of the hospitals, where operation was advised. She took this under consideration for a few weeks but did not report. She applied to another hospital, receiving the same advice. She said she would think about it for a few days and she never returned. The lack of judgment of the physician and the procrastination of the patient are obvious. In a case of Paget's disease which had once been cured by Roentgen ray, the breast was removed on return of the trouble and on section showed a wide involvement of the underlying structure. As a matter of

fact, Paget's disease is simply an outward manifestation of a well-established deeper cancer. Another patient with a small palpable lump, on section showed a discrete lump considerably removed from the nipple and, in the portion of the breast between the lump and the nipple, quite definite involvement. One patient coming for advice with considerable involvement of the breast refused operation for six months, in which time the breast had very markedly degenerated. Operation was done to remove the widely involved breast. In three months the patient returned with wide involvement of the other breast. A very large breast, in which the pathologic condition started probably as Paget's disease, showed almost the entire breast a consolidated mass involving not only the breast structure, but also the pectoral muscle. Recurrence rapidly followed in the opposite breast, which, at the death of the patient, had become almost as large as the first breast. A tumor of the shoulder on removal showed sarcoma. Within a few weeks a second growth was noted in the breast. A portion of the breast, containing the lump, was removed; recurrence followed in a few weeks in the breast, and likewise a large recurrence followed removal of the growth on the shoulder. The second growth on the shoulder within a few weeks attained a size of about 6 by 4 inches. Under massive doses of Roentgen ray there was entire disappearance within three weeks.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

July, X, No. 1, pp. 1-76

1 Congenital Dextrocardia with Patent Interventricular Septum. R. D. Moffett and S. Neuhof, New York.
2 Pathology of Myatonia Congenita (Oppenheim). Necropsy Report. A. Strauch, Chicago.
3 *Case of Congenital Heart Disease with Demonstration of Specimen. J. L. Morse, Boston.
4 Acute Infective Endocarditis. F. Huber, New York.
5 Three Cases of Catarrhal Jaundice in Infancy. T. C. Hempelmann, St. Louis.

3. **Congenital Heart Disease.**—The examination of the heart in Morse's case was as follows: The right border of the heart was 4.5 cm. to the right of the median line, and the left border 11 cm. to the left of the median line. The upper border was at the lower border of the second rib. The action was regular. There was a high-pitched murmur beginning just before the first sound, accompanying the first sound and continuing a little after it. The second sound was accompanied by a long, somewhat rough murmur, which was loudest in the third left space. It was louder in the pulmonic area than in the aortic area or at the apex. The second sound was distinct. There was no edema or ascites. Gross anatomic diagnosis: Complete congenital atresia of pulmonary artery; congenital defect of interventricular septum; persistent ductus arteriosus; acute vegetative endocarditis; thrombosis of ductus arteriosus; patent foramen ovale; dilatation and hypertrophy of right ventricle.

American Journal of Public Health, Boston

June, V, No. 6, pp. 493-592

6 Truth in Publicity. C. V. Chapin, Providence, R. I.
7 Judicial Enforcement of Health Protection. H. B. Hemenway, Evanston, Ill.
8 Dairyman vs. Dairy. C. E. North, New York.
9 Accuracy of American Cancer Mortality Statistics. F. L. Hoffman, Newark, N. J.
10 Prevalence of Occupational Factors in Disease and Suggestions for Their Elimination. E. R. Hayhurst, Columbus.
11 Statistical Treatment of Deaths of Nonresidents. C. L. Wilbur, Albany, N. Y.
12 International Joint Commission's Investigation of Sewage Pollution of Boundary Waters. A. J. McLaughlin, Boston.
13 Physical Examination of Employees Engaged in Manufacture of Portland Cement. G. E. Tucker, Riverside, Calif.
14 Use of Complement Fixation Reactions in Public Health Diagnostic Laboratory. A. McNeil, New York.

Annals of Surgery, Philadelphia

June, LXI, No. 6, pp. 641-778

15 *Ligature of Innominate Artery for Cure of Subclavian Aneurysms; Report of Case. J. E. Thompson, Galveston, Tex.
16 *Transplantation of Entire Bones with Their Joint Surfaces. A. B. Gill, Philadelphia.
17 *Osteogenic Power of Periosteum; Note on Bone Transplantation. J. S. Davis, Baltimore, and J. A. Hunnicutt, Athens, Ga.
18 Gunshot Injuries of Spinal Cord. R. Derby, Paris.
19 Perforating Gunshot Wounds of Abdomen. L. Guerry, Columbia, S. C.
20 Fracture of Pelvis. A. C. Burnham, New York.
21 *Simultaneous Fracture of Both Femurs. A. Vander Veer and E. A. Vander Veer, Albany, N. Y.
22 Autogenous Bone Grafts Versus Lane's Plates. H. H. Trout, Roanoke, Va.
23 Papilloma of Gallbladder; Report of Eighty-Five Cases. H. C. Irwin and W. C. MacCarty, Rochester, Minn.
24 Occult Strangulated Inguinal Hernia; Spontaneous Reduction "En Masse." M. R. Bookman, New York.
25 Treatment of Benign Papillomata of Urinary Bladder with High Frequency Currents. E. Beer, New York.

15. **Ligature of Innominate Artery.**—The case which forms the basis of Thompson's communication was one of spontaneous aneurysm of the axillary artery involving also the third and second parts of the subclavian. The sac was an enormous one, and reached from the scalene muscles above to the axillary outlet below. The axillary portion was many times larger than the subclavian. The patient died one month after the ligation.

16. **Transplantation of Entire Bones.**—Full-grown dogs were operated on under complete surgical anesthesia by ether. The second long metatarsal bone was excised in the front paws and each one was implanted in the opposite paw. The ends of the bone were held in position by chromic catgut sutures. Tendons and fascia were sutured over it with interrupted sutures of silk floss. No dressings were applied and the dogs were permitted to walk about. This they usually did on the day following operation without any evidence of pain. Eleven bones were transplanted. One dog was killed a week after operation, before healing in of the bones had occurred, and in another dog one transplant was removed under ether. The remaining eight transplants healed in after more or less suppuration of all wounds but one. The dogs were killed from seven to eight and one-half months after operation. One of the eight healed-in transplants was found to be almost all absorbed. Another is badly distorted and a second moderately changed as a result of osteomyelitis following operation, but they appear to be serving their function and they present evidence of new bone formation. The remaining five transplanted bones are practically normal in appearance. The articular ends of the bones are apparently normal and the joints have perfect function except in those cases in which the end of the bone was destroyed by the suppurative process. Microscopic examination of the transplanted bones that healed in with little or no suppuration of the wounds shows no evidence of dead bone anywhere. The bone cells as well as the cells lining the marrow cavity and the cells of the periosteum are well stained. If there was necrosis of the transplanted bone, the necrotic part has all been absorbed and replaced. The joint cartilage also appears normal.

17. **Osteogenic Power of Periosteum.**—Davis and Hunnicutt repeated during the last two years many of Macewen's experiments, and also have carried out a number of their own. The experiments were carried out as follows: 1, the transplantation of free periosteum without bone particles into the muscle or subcutaneous tissue of the same animal; 2, the transplantation of free periosteum without bone particles into the muscle or subcutaneous tissue of another animal of the same species; 3, the injection into the soft parts of small bits of periosteum without bone particles in suspension; 4, the transplantation of free periosteum with thin bone shavings attached, into soft parts of the same animal; 5, the transplantation of free periosteum without bone particles, concealed in a blood clot, into the subcutaneous tissue of the same animal; 6, the transplantation of pedunculated flaps of periosteum without bone particles into, or around, adjacent muscle; 7, the transplantation of pedunculated flaps of periosteum, with a thin film of bone attached into adjacent soft

parts; 8, the subperiosteal resection of bone, leaving the periosteal tube, so far as possible, undisturbed; 9, the transplantation of bone and other substances into the periosteal tube after partial subperiosteal resection of a rib; 10, the implantation of bone and periosteum into prepared defects in the skull; 11, autobone in soft parts; 12, isobone in soft parts; 13, autobone in bone defects; 14, isobone in bone defects.

The results of these experiments are summarized as follows: Free periosteal transplants did not produce bone in the large majority of experiments, even though osteoblasts were adherent to the transplants. Pedunculated flaps of periosteum did not produce new bone. Free periosteal transplants and pedunculated periosteal flaps with bone shavings attached produced bone in each experiment. From this we might surmise that bone particles had been accidentally transplanted in those experiments in which bone was found after the transplantation of free periosteum. The removal of periosteum had little, if any, effect on the nutrition of a bone. The surface from which the periosteum was removed showed very little overgrowth of bone, unless there had been considerable irritation of that surface, either by trauma or by infection. The area from which the periosteum was taken was covered by a thin, very adherent fibrous membrane, or the muscle tissue was adherent to the denuded area. Absorption occurred when a silver ring was snugly applied around a bone over the periosteum and also at times when it was applied around denuded bone. There was no new bone formed from either the periosteum or bone when a silver ring was placed around a bone beneath the periosteum. Both autobone and isobone, without periosteum, were effective in repairing skull defects. Autobone and isobone, without periosteum, when transplanted into the periosteal tube after subperiosteal resection of a rib, caused stimulation of bone growth from the periosteum, and also from the rib ends.

Transplants covered with periosteum, and foreign bodies, stimulated bone growth only from the rib ends. Transplants of the same size in a periosteal tube, after subperiosteal resection, under exactly the same conditions, acted quite differently. After subperiosteal resection of a portion of a bone, the growth of bone in repairing the defect was from the bone stumps, the periosteum acting as a limiting membrane. Autobone, both with and without periosteum, lived and was successfully transplanted to fill defects in bone. Clinically, it is advisable to transplant bone covered in part, at least, with periosteum. Isobone in a bone defect acted as a scaffold for the growth of new bone from the living bone stumps, but there was ultimate absorption of the transplant. Autobone, both with and without periosteum, was absorbed when transplanted into soft parts. The periosteum seemed to have some protective influence against early absorption. The fate of those transplants which had grown together and produced new bone is doubtful, but as absorption was going on, and as the tendency of free bone in the soft parts is to be absorbed, it seems probable that absorption would eventually occur. The same may be said of isobone in soft parts, except that in no instance was any new bone formed from the transplant. The growth of new bone from bone stumps after resection of a portion of a bone with its periosteum is astonishingly slow, being very little more advanced after six months than after six weeks.

21. **Simultaneous Fracture of Both Femurs.**—The authors call attention to a case in which one femur was treated by plating, the other by extension and plaster of Paris case. Much better union was secured by means of plating than by extension and use of plaster of Paris.

Boston Medical and Surgical Journal

July 1, CLXXIII, No. 1, pp. 1-36

26 Transportation of Wounded. E. L. Gros, Paris.
27 First Impressions of Opportunity for Orthopedic Work at American Ambulance. R. B. Osgood, Boston.
28 *Paralytic Conditions Resulting from Surgical and Obstetric Accidents. J. W. Sever, Boston.
29 *Homogenized Milk; Its Possible Applications to Infant Feeding. M. Ladd, Boston.
30 Luetic Bursopathy of Verneuil; Report of Case of Congenital Type. W. P. Coues, Boston.
31 *New Symptoms in Amaurotic Family Idiocy. I. H. Coriat, Boston.

28. **Paralytic Conditions Resulting from Surgical and Obstetric Accidents.**—The method which, in Sever's opinion, offers the best results in the treatment of Volkmann's paralysis is the one which divides the muscle bellies by free incisions and so lengthens the tendons. The after-treatment is of the greatest importance, and consists of the use of a palmar and dorsal splint to prevent and reduce the contractures of the wrist and fingers; electricity, galvanic and faradic, if there be nerve involvement, and massage and manipulation. Treatment should be long continued, but in many cases the benefit to be derived from any or all of these methods is not very great, and it is only rarely that a very useful hand is obtained. The results, however, are much better than if nothing had been attempted.

29. **Homogenized Milk.**—It is possible to combine by homogenization a vegetable fat, such as olive oil, with precipitated casein, or fat-free lactic acid milk, and test its food value in acute diarrheas, or in convalescents from acute diarrheas, conditions in which the ordinary fats of milk are not well tolerated. Ladd has tested the tolerance to olive oil in these acute infections in three cases: one a convalescent from a severe infectious diarrhea, and two during an infectious diarrhea at the end of the first week of fever. In the convalescent case, the child, 2½ years of age, took 2 per cent. of olive oil in a fat-free lactic acid mixture and gained over a pound in four days. In the other two cases the 1.50 per cent. of olive oil was given in a malt-soup mixture. Both children, one 1 year, the other 3 years of age, steadily improved. The type of food which Ladd has found most useful in cases of fat indigestion with extreme malnutrition, is the malt-soup mixture. He says that many of the worst cases are amenable to successful feeding by this method intelligently applied. If olive oil is combined with fat-free milk, the cost of a modified milk could be greatly reduced for the benefit of the poor, especially if we are able to demonstrate the possibility of keeping sweet and palatable, for several days, a pasteurized homogenized milk.

Another point in connection with the malt-soup olive-oil mixtures is the effect of the homogenizing process on the starch. The tendency for the barley decoction to separate on standing is prevented. In fact, any milk modification is improved in taste and appearance by this process of homogenization. It has been shown that whole milk so treated is more easily digested and assimilated. Homogenization of modified milks would, therefore, seem to increase their efficiency if used in cases in which there is no marked intolerance for cow's fat. There are other fats and oils besides olive oil, which Ladd is planning to use as substitutes for cow's fat. Cod liver oil, for instance, homogenized with fat-free milk or malt-soup mixtures, is fairly palatable as compared with ordinary methods of administration, but he has not yet tried it in a case of difficult fat digestion. Banana oil and the oil of the soja bean might also be tried.

31. **Symptoms in Amaurotic Family Idiocy.**—The symptoms mentioned by Coriat are: Explosive laughter: This symptom was noticed in three cases. In two of these, the mental deterioration was marked. Hydrocephalus: This was present in one case. Bulbar symptoms: This was present in one case and was shown by drooling of saliva, choking spells, difficulty of swallowing and attacks of apnea. This child died suddenly from bulbar paralysis. Nystagmus: Constant lateral and rotary nystagmus was present in three cases, in one of which it persisted during the entire course of the disease. Hypotonia: In two cases there was a marked flaccidity of the limbs, resembling the condition seen in amyotonia congenita. Abnormal reflex phenomena were noted.

Canadian Medical Association Journal, Toronto

June, V, No. 6, pp. 469-564

32 Prophylactic Inoculation Against Typhoid in Fourth Militia Divisional Area of Canada. H. B. Yates and L. J. Rhea, Montreal.
33 Artificial Pneumothorax in Treatment of Phthisis. C. D. Parfitt and D. W. Crombie, Gravenhurst, Ont.
34 Occurrence of Fluid Exudate in Cases of Lobar Pneumonia. W. Goldie, Toronto.
35 Case of Multiple Faceted Calculi of Penile Urethra. G. M. Manning, Montreal.

Cleveland Medical Journal

June, XIV, No. 6, pp. 407-482

36 *Ogilvie Method of Treatment of Syphilis of Central Nervous System with Standardized Salvarsanized Serum; Report of Sixteen Cases. W. C. Stoner, Cleveland.
37 Symptoms and Diagnosis of Incipient Pulmonary Tuberculosis. S. A. Douglas, Mount Vernon.
38 Composite Report of Service of Lakeside (Cleveland) Unit at American Ambulance, Paris. G. W. Crile.
39 Diagnosis of Cardiospasm. J. D. Osmond, Cleveland.
40 *Pericardial Cyst. A. R. Timme, Cleveland.
41 *Cavernous Hemangioma of Pericardium. A. R. Timme, Cleveland.

36. **Treatment of Syphilis of Nervous System.**—In the sixteen cases treated by Stoner with a total of forty-two injections, no untoward symptoms arose except pain (in approximately 50 per cent. of the cases) which generally required no means of relief and passed off in twelve hours. In only two cases were the pains very severe, and these were cases of tabes, in which 0.75 mg. was given. The treatments have been repeated every two weeks, and in cases with positive blood stream to the Wassermann, an intravenous 0.3 gm. salvarsan was given in a week subsequent to intraspinal treatment. The cases treated have peculiar interest, inasmuch as a number of them have had intensive intravenous salvarsan therapy and some mercurial therapy over a period of two years. The cases consist of the following clinical classification: 6 tabes; 1 paresis; 4 cerebrospinal syphilis; 3 cerebral syphilis; 1 syphilitic hemiplegia; 1 syphilitic psychosis (?). This group of cases received a total of forty-two injections at two weeks' interval. The greatest number of treatments given in a single case were six. The clinical improvement in certain cases has been striking. One patient with cerebral syphilis who had a second syphilitic infection following an intensive salvarsan intravenous treatment of an infection just one year previous to his reinfection, developed severe head pains, which were not relieved with intravenous salvarsan treatment and intramuscular mercurial treatment. After three intraspinal treatments, his head pains were completely relieved, his general mental condition much improved, and the laboratory findings on the fluid gave a negative Wassermann with all antigens, a negative Lange and a cell count within normal limits. In some cases of cerebrospinal syphilis the patients have lost their pains, deep reflex disturbances, and show decided changes in lumbar puncture findings.

Early cases of paresis treated intensively show marked improvement, both mentally and physically. Laboratory findings closely parallel the clinical improvement. One patient with psychosis of questionable classification, but not a paretic, who had a marked syphilitic infection as evidenced by a very positive Wassermann in the blood, but a negative lumbar puncture, was given an intraspinous treatment to determine what effect it might have on the mental condition. The day following the injection, his mental state became practically normal and he has remained much improved. A second intraspinal injection was given in three weeks on the supposition that the toxemia of his syphilitic infection might be a factor in his abnormal mental state. There was found, on examination of the fluid three weeks subsequent to the first injection, an increase of lymphocytes up to sixty-five cells, to 3.4 c.c. of cerebrospinal fluid, but the Wassermann and Lange tests were both negative. One case of syphilitic hemiplegia of nine years' standing, in which there was a more recent interstitial keratitis, showed marked improvement with intravenous and intraspinal treatment. The eye condition cleared up, the anemia disappeared, and a gain in weight and strength was very marked. Two cases of tabes with Charcot joints lost their last remnant of pains following intraspinal treatments that had persisted after intensive intravenous and mercurial treatment.

40. **Pericardial Cyst.**—Timme's patient was a 57-year-old man who entered the hospital with a complaint of incontinence and retention of the urine as well as edema for the past month. Physical examination showed a slightly enlarged heart with a soft systolic murmur. Over the end of the sternum could be heard a to-and-fro friction-rub with each cardiac cycle during inspiration. A suprapubic puncture was done to relieve the distention of the bladder, but the patient later died in uremic coma. On necropsy the bladder and ureters were found to be moderately distended or dilated, the stricture being in the prostatic urethra. The kidneys showed an acute nephritis. The lungs showed nothing beyond a congestion. The myocardium and endocardium were normal. The pericardial sac was slightly increased in thickness; it contained about 50 c.c. of a clear straw-colored liquid not under tension. The entire serous surface was covered with a thick fibrinous exudate and showed everywhere a delicate villous surface with many delicate adhesions. The exudate was easily removed and left a fine granular surface.

On the right side of the cardiohepatic angle, there was an ovoid cyst-like body, rather firm and fluctuating. It was attached to the lower anterior extremity of the pericardial sac. Although it could not be emptied by pressure, gentle probing along the pericardial surface opened up a small connection of only a few millimeters diameter. On cutting the sac, it was found to be a multiloculated cyst containing a thick yellow liquid. There was apparently no connection between the branches, but the cyst nearest the pericardium opened into it. The contents of this nearest cyst seemed to be infected from the pericarditis by contiguity. The wall was rather thick, tough and inelastic.

41. **Cavernous Hemangioma of Pericardium.**—A 58-year-old woman complained of shortness of breath and swelling of the feet, and a diagnosis of mitral stenosis and insufficiency. There was no friction-rub during life. The patient died in decompensation. At necropsy the clinical diagnosis was borne out, and in addition were found arteriosclerosis, atheroma and calcification plaques of the aorta, and also thrombosis at the aortic bifurcation, with complete thrombosis of both common iliacs for 3 inches, with complete organization; there was ossification with marrow-formation in the walls of the lower aorta and iliacs. The pericardium contained some fat and was heavier than usual. The sac contained 75 c.c. of a clear yellowish liquid with an occasional string of fibrin. On the portion of the parietal layer overlying the anterior surface of the heart, and a little below the middle point, was situated a dark bluish mass of distended vessels. These were about the size of a normal radial artery and were closely bound together. The whole structure covered an area slightly larger than the size of a 25-cent piece. The surface was perfectly smooth and glistening, there being no rupture, adhesions, exudate or external clotting.

Georgia Medical Association Journal, Augusta

June, V, No. 2, pp. 25-48

42 Observations on Blood Pressure. J. H. Honan, Augusta.
43 Failure to Recognize Normal Variations of Abdominal Viscera Cause of Poor Results in Abdominal Surgery. B. Moore, Atlanta.
44 Undesirable Provisions in Present Vital Statistics Law and Suggestions for Their Correction. E. R. Park, Atlanta.
45 Treatment of Uncinariasis Relative to Improved Methods. A. G. Fort, Atlanta.

Indiana State Medical Association Journal, Fort Wayne

June, VIII, No. 6, pp. 277-322

46 *Education of Public to Early Recognition of Cancer of Uterus. B. Kennedy, Indianapolis.
47 *Nasal Polypi. G. W. Spohn, Elkhart.
48 *Trachoma in Indiana. E. M. Shanklin, Hammond.
49 Technic of Roentgen Ray Massive Dose for Treatment of Deep Seated Carcinoma. J. N. McCoy, Vincennes.

46 and 47. Abstracted in THE JOURNAL, Oct. 24, 1914, pp. 1499 and 1501.

48. Abstracted in THE JOURNAL, Oct. 31, 1914, p. 1602.

Journal of Experimental Medicine, Lancaster, Pa.

July, XXII, No. 1, pp. 1-121

50 *Studies on Circulation. Inequalities in Blood Flow in Two Hands (or Feet) Due to Mechanical Causes (Embolism, Compression of Vessels, etc.) or to Functional (Vasomotor) Causes, with Discussion of Criteria by Which Conditions are Discriminated. G. N. Stewart, Cleveland.
51 *Hibernation and Pituitary Body. H. Cushing and E. Goetsch, Boston.

52 *Late Poisoning with Chloroform and Other Alkyl Halids in Relationship to Halogen Acids Formed by Their Chemical Dissociation. E. A. Graham, Chicago.
53 Form of Epithelial Cells in Cultures of Frog Skin, and Its Relation to Consistency of Medium. E. Uhlenhuth, New York.
54 *Occurrence of Carriers of Disease-Producing Types of Pneumococcus. A. R. Dochez and O. T. Avery, New York.
55 Effects of Long Continued Intraperitoneal Injections of Proteins. P. G. Woolley, A. DeMar and D. Clark, Cincinnati.

50. **Studies on Circulation.**—In cases in which great inequalities in the blood flow in the two hands were produced by mechanical causes (ligation or compression of vessels, embolism), the stability of the ratio of the flows, in successive measurements at short intervals, was found by Stewart to be characteristic. Over long intervals the opening up of collateral circulation or the progressive increase of the block (in a case of multiple embolism with thrombosis) was followed by changes in the ratio of the blood flows in the normal and the affected part. Another criterion of these conditions was found to be that the inequality was not abolished by producing general vasomotor changes, namely, by altering the external temperature. In certain cases inequalities in the blood flow in the two hands (or feet) were found which were not stable from day to day, and which could be abolished, reduced, increased or reversed by alterations in the external conditions which bring about general vasomotor changes. These inequalities, not associated with clinically recognizable differences between the parts compared, were interpreted as due to unequal activity of the vasomotor mechanism on the two sides. The condition appeared to be most frequent in certain groups of neurologic cases.

51. **Hibernation and Pituitary Body.**—Cushing and Goetsch hold that a train of symptoms coupled with retardation of tissue metabolism and with inactivity of the reproductive glands, not only accompanies states of experimentally induced hypophysial deficiency, but is equally characteristic of clinical states of hypopituitarism. The more notable of these symptoms are a tendency, in the chronic cases, toward an unusual deposition of fat, a lowering of body temperature, slowing of pulse and respiration, fall in blood pressure and oftentimes a pronounced somnolence. These symptoms bear a marked resemblance to the physiologic phenomena accompanying the state of hibernation which have heretofore been unsatisfactorily ascribed solely to extracorporeal factors, namely, a seasonal deprivation of food and low temperature. In a series of hibernating animals (woodchucks) it was found that during the dormant period histologic changes are apparent in many of the ductless glands. The most notable of these changes occur in the pituitary body. The gland not only diminishes in size, but the cells of the pars anterior, in some animals at least, completely lose their characteristic staining reactions to acid and basic dyes. At the end of the dormant period the gland swells, and as the cells enlarge they again acquire their differential affinity for acid, basic and neutral stains, and at the same time karyokinetic figures may appear.

52. **Late Poisoning with Chloroform.**—The view is developed by Graham that the changes characteristic of late poisonings, namely, edema, multiple hemorrhages, fat infiltration and necrosis are ascribable (1) to acids and (2) to the fact that the amount of acid formed parallels the chemical dissociability of the drug outside of the body. Favoring the view that acid is responsible for the changes are the following observations: 1. All the characteristic features of late chloroform poisoning have been produced merely by the administration of hydrochloric acid, except, however, for a different distribution of the liver necrosis. 2. The areas of central necrosis produced in the liver by the various substances under discussion give an acid reaction to neutral red. 3. Sodium carbonate in a hypertonic sodium chlorid solution markedly inhibits the production of the lesions. The suggestion is made that the halogen acid (hydrochloric, hydrobromic or hydriodic acid), directly liberated in the process of dissociation, may be the important factor which makes the tissue changes seen in poisoning with chloroform and other alkyl halids so different from those following the administration of narcotic drugs of a different type.

54. **Carriers of Disease-Producing Types of Pneumococcus.**—The studies detailed by Dochez and Avery show that there are two sources of danger in the spread of pneumococcus infection. One lies in the occurrence of healthy carriers of disease-producing pneumococci among individuals associated with cases of pneumonia, and the other in the fact that patients recovering from the disease harbor the responsible organism for a considerable length of time. In every such instance the pneumococcus isolated has corresponded in type with that of the infected individual. Convalescents from pneumonia carry for a considerable length of time the type of pneumococcus with which they have been infected. The existence of the carrier state among healthy persons and among those recently recovered from pneumonia establishes a basis for understanding the mechanism by means of which lobar pneumonia spreads and maintains its high incidence from year to year.

Journal-Lancet, Minneapolis

June 15, XXXV, No. 12, pp. 307-338

56 Avoidable Errors in Diagnosis of Cardiac Insufficiencies. C. L. Greene, St. Paul.

Kentucky Medical Journal, Bowling Green

June, XIII, No. 7, pp. 259-304

57 Use of Salvarsanized Serum. H. J. Farbach, Louisville.
58 New Diagnostic Method. C. Pope, Louisville.
59 Twice Recurring Hernia Repaired by Free Fascial Transplantation. L. Kahn, Louisville.
60 Circumcision. H. L. Read, Louisville.
61 Treatment of Pneumonia in Childhood. J. H. Pritchett, Louisville.
62 Report of Three Urinary Bladder Operations. J. R. Wathen, Louisville.
63 Peritonitis; With Especial Reference to Use of Iodin in Its Treatment. F. T. Fort, Louisville.
64 Unusual Case of Fistula. J. G. Sherrill, Louisville.
65 Some Observations on Tonsils. A. McKenney, Owensboro.
66 What Is Rheumatism? J. T. Dixon, Owensboro.
67 Ankylostomiasis. F. S. Tripp, Harrodsburg.
68 Neurasthenia. E. D. Turner, Sorgho.
69 Tuberculosis of Cervical Glands. J. W. Kincaid, Cattlettsburg.
70 Some Cases Operated on in Somerset General Hospital. A. W. Cain, Somerset.
71 Pellagra; Report of Case. J. H. Harrison, Hawesville.

Lancet-Clinic, Cincinnati

June 19, CXIII, No. 25, pp. 673-700

72 Septic Sinus Thrombosis; Report of Cases. G. C. Hall, Louisville, Ky.
73 Disease Prevention and How It May Be Accomplished. L. H. Schriver, Cincinnati.
74 Tuberculosis of Hilus Lymph Glands. C. S. Rockhill, Cincinnati.

June 26, No. 26, pp. 701-728

75 Injuries of Eye and Appendages. D. H. Abbott, Cincinnati.
76 Roentgen Ray Illustrations of Tubercular Lung Lesions. C. C. Kennedy, Cincinnati.
77 Prophylaxis in Pediatrics. H. R. Carroll, Cincinnati.
78 Relation of Medical Profession to Practical Pan-Americanism of Twentieth Century. C. A. L. Reed, Cincinnati.

Medical Record, New York

July 3, LXXXVIII, No. 1, pp. 1-46

79 Advances in Our Knowledge and Treatment of Cancer in Last Thirty Years. F. C. Wood, New York.
80 Transition of Gastric Ulcer into Carcinoma and Gastric Carcinoma into Ulcer. J. C. Hemmeter, Baltimore.
81 Carcinoma of Stomach. J. F. Erdmann, New York.
82 Plea for Rational Treatment of Cancer. L. D. Bulkley, New York.
83 Organotherapy in Chronic Disease with Special Reference to Its Possibilities in Cancer. H. R. Harrower, New York.
84 *Roentgen Ray in Carcinoma of Breast. M. K. Fisher, Philadelphia.

84. **Roentgen Ray in Carcinoma of Breast.**—In the absence of any specific remedy at present for the cure of cancer, the status of present-day treatment for carcinoma of the breast, according to Fisher, resolves itself, first and foremost, into early and wide removal of the diseased organ and all secondarily involved tissues, followed by thorough, persistent and continuous Roentgen-ray exposures over the site of operation and all contiguous areas.

Michigan State Medical Society Journal, Grand Rapids

June, XIV, No. 6, pp. 309-350

85 Mouth Infections. F. B. Walker, Detroit.
86 Neuroretinitis; Report of Cases. A. E. Bulson, Jackson.

87 Infectious Jaundice. W. Donald, Detroit.
88 Strychnin and Caffein in Acute Infectious Diseases. E. Boise, Grand Rapids.
89 Morphinism: — Its Treatment at Home — Harrison Law. H. A. Sharps, L'Anse.
90 Under What Circumstances is Craniotomy on Living Child Justifiable? R. Peterson, Ann Arbor.
91 Case of Myelogenous Leukemia Treated with Benzole and Roentgen Ray. H. B. Schmidt, Ann Arbor.
92 Syphilis as Complication of Pregnancy. R. A. Bartholomew, Ann Arbor.
93 Case of Cirsoid Aneurysm. H. M. Malejan, Ann Arbor.

Modern Hospital, St. Louis

June, IV, No. 6, pp. 383-452

94 Chicago Lying-In Hospital and Dispensary. J. B. DeLee and R. E. Schmidt, Chicago.
95 Organization of New York State Hospitals. A. W. Hurd, New York.
96 Small Community Hospital Built and Conducted by Physicians. F. G. Murphy, Mason City, Ia.
97 Electric Heat for Cooking in State Hospital. C. E. Laughlin, Evansville, Ind.
98 Chemistry and Physiology of Bread, Biscuits and Crackers. J. P. Street, New Haven, Conn.
99 Fireless Cookers as Adjunct in Hospital Kitchen. F. A. Seely, Chicago.
100 Cost of Hospital Buildings and Fallacy of "Per Bed" Rating. T. J. Van der Bent, New York.
101 Operating Hospital Under Budget System. C. S. Loder, New York.

New Orleans Medical and Surgical Journal

June, LXVII, No. 12, pp. 983-1070

102 Pathology and Bacteriology of Hodgkin's Disease. J. A. Lanford, New Orleans.
103 Malingering. H. D. King, New Orleans.
104 Compensation of Workmen and Others for "Neurosis" Following Accident. T. A. Williams, Washington, D. C.
105 Sanitary Control of Leprosy. P. Gelpi, New Orleans.
106 Pertinent Remarks on Bacteriology and Pathology of Leprosy C. W. Duval, New Orleans.
107 Medical Aspects of Leprosy. R. Hopkins, New Orleans.
108 Surgical Aspects of Leprosy. R. Matas, New Orleans.
109 Value of String Test in Diagnosis of Gastric Lesions. S. K. Simon, New Orleans.
110 Prostatectomy Under Local Anesthesia. C. W. Allen, New Orleans.
111 Amputations. H. B. Gessner, New Orleans.

New York Medical Journal

July 3, CII, No. 1, pp. 1-64

112 Cancer of Mouth. R. Abbe, New York.
113 Cancer Patient's Dilemma. W. S. Bainbridge, New York.
114 What Does Surgery Offer Patient with Carcinoma of Stomach? J. B. Deaver, Philadelphia.
115 *Incision of Tumors for Diagnosis. J. Ewing, New York.
116 Cancer in Relation to Body Elimination. L. D. Bulkley, New York.
117 Cancer of Skin. S. Pollitzer, New York.
118 *Uterine Carcinoma Treated by Radium. W. S. Newcomet, Philadelphia.
119 Cancer of Upper Air Tract, with Special Reference to Its Treatment with Radium. W. Freudenthal, New York.
120 Negative and Positive Diagnosis of Cancer of Gastro-Intestinal Tract. L. G. Cole, New York.
121 Cancer of Bladder and Kidneys. (To be continued.) V. C. Petersen, New York.
122 Treatment of Epithelioma by Modern Radiation. R. H. Boggs, Pittsburgh.
123 Cancer of Female Breast. W. B. Snow, New York.
124 Some Comments on New Antiserum for Cancer. W. N. Berkeley, New York.

115. **Incision of Tumors for Diagnosis.**—Ewing states his conclusions regarding the indications for the microscopic study of tumors before operation, as follows: 1. The careful excision of a small piece of a malignant tumor by a sharp scalpel need not as a rule tend to disseminate or aggravate the disease. Dissemination of tumor cells requires sufficient force to propel the cells along lymph vessels or the opening of blood vessels, into which tumor cells may be carried. 2. Incision through the unbroken skin is seldom admissible for the sake of diagnosis. The skin is the chief protective against infection which, when once established in a tumor, greatly aggravates the disease. It is especially to be avoided with sarcomas of bones, muscle and fasciae, tumors of the breast, and in all growths in which incision of the skin involves also incision through a tumor capsule. In all such cases, whenever possible, it is better to remove the entire tumor by an incision which permits of enlargement for a more extensive operation. 3. The clinical history is an essential basis for the correct interpretation of microscopic structure. 4. The prognosis of a tumor may to a considerable extent be based on the microscopic structure. 5. The use of frozen sections, while occasionally of decisive value, encourages hasty conclusions and readily leads to error. It should be replaced as far as possible by the gross examination of the whole tumor. 6. No rigid rules can safely be followed in deciding when to remove a portion of a tumor for diagnosis. The conditions surrounding the growth of tumors are so variable that each tissue and organ must be considered by itself.

118. **Uterine Carcinoma Treated by Radium.**—While radium is not recommended by Newcomet as an agent to control carcinoma of the uterus, as there is no evidence to show that it controls metastasis, he claims that it does inhibit its local growth in many cases, and even advanced cases can be temporarily restored. With the evidence of the complete disappearance of the disease, the general improvement of the system can scarcely be laid to a psychical impression. Therefore, the more general use of radiation in cases of uterine carcinoma is to be recommended, especially as a postoperative procedure.

Pennsylvania Medical Journal, Athens

June, XVIII, No. 9, pp. 681-764

125 Basic Considerations in Roentgen Study of Intestinal Stasis. J. T. Case, Battle Creek, Mich.
126 Intestinal Stasis — Medical Aspect. T. R. Brown, Baltimore.
127 *Surgical Aspects of Fecal Stasis. J. G. Clark, Philadelphia.
128 Orthopedic Aspects of Chronic Intestinal Stasis. L. T. Swaim, Clifton Springs, N. Y.
129 History of Allegheny County Medical Society. E. B. Heckel, Pittsburgh.

127. **Surgical Aspects of Fecal Stasis.**—Clark has performed the hammock operation or suspension of the transverse colon in a considerable series of cases with satisfactory results in almost 50 per cent.; in others partial relief was secured, and in a definite percentage no relief, or even an exaggeration of previous symptoms followed; in one instance, death ensued from acute dilatation of the stomach. The most satisfactory results were obtained in those cases in which the transverse colon is weighted with fecal matter, but is not so redundant or so dilated as to interfere with its proper return to the upper abdomen. If the colon is greatly redundant or markedly dilated, this operation is not effective, and in Clark's opinion should not be performed. In two cases, in which he attempted to deflect the fecal current by making a lateral anastomosis between the cecum and the dependent transverse colon, or between the latter and the sigmoid, the effort was not successful, the symptoms being in no way alleviated. In one case Clark blocked the ascending colon at the hepatic flexure. The patient was no better, in fact, was worse, and ultimately Clark was forced to remove the colon down to the sigmoid flexure and the ileum was short-circuited at this point. Then and then only was the obstructive constipation and exaggerated tympanites overcome.

In eleven colectomy cases the primary basis for the operation was a definite obstructive constipation of such severe grade as to require, day in and day out, excessive purgatives and drastic enemas. Six patients were most satisfactorily relieved, the remaining five have not fared so well. One is dead of an intestinal obstruction which occurred six months subsequent to the operation, after the patient made a most satisfactory gain in every way. At least three of the others are no better, possibly are worse, because they are now battling against the evils of an enlarging small intestine and a toxic state from a reflux from the rectum through the anastomotic opening. When these cases reach this stage, Clark says, nothing further can be done for them.

Clark calls attention to one of the serious defects in the short-circuiting operation of the small intestine, the danger of an antiperistaltic impaction of the ascending and transverse colons with inspissated fecal matter which inevitably requires the removal of the colon in about one-third of these cases. On the other hand, the removal of the colon carries

with it certain serious anatomic hazards. First, the omentum is removed, and the postoperative risks are enormously increased through the formation of adhesions causing a partial or complete intestinal obstruction. In this direction the patient is deprived of this blanket which serves so admirably in shielding the small intestine from adhesions to the anterior abdominal wall and from adhesions between individual coils of intestine. A further and very serious objection is the tendency for the ileum to become dilated and gradually to lose its functional value. At first, Clark attributed this to a defective anastomosis with possibly a too small intestinal aperture, but in one or two instances he had an opportunity to see the subsequent results and found that the intestinal adhesions caused the trouble.

Public Health Journal, Toronto

June, VI, No. 6, pp. 253-306

130 Refuse Destruction. R. O. Wynne-Roberts, Regina, Sask.
131 Supervision of Communicable Diseases in Smaller Communities. H. W. Hill, London.

South Carolina Medical Association Journal, Anderson

June, XI, No. 6, pp. 171-203

132 Diet in Typhoid. J. R. Murlin, Spartanburg.
133 Nitrous Oxid as Anesthetic. A. E. Baker, Charleston.
134 What Modern Community Has Right to Expect of Its Physician. E. W. Pressly, Clover.

Southern Medical Journal, Mobile

June, VIII, No. 6, pp. 447-550

135 Syphilis of Heart. S. R. Roberts, Atlanta, Ga.
136 Syphilis in American Negro. K. M. Lynch, B. K. McInnes and G. F. McInnes, Charleston, S. C.
137 Treatment of Some Typical Cases of Syphilis of Central Nervous System. J. P. Munroe and A. J. Crowell, Charlotte, N. C.
138 Treatment of Syphilis. E. H. Martin, Hot Springs, Ark.
139 *Etiology and Treatment of Tabes Dorsalis and Specific Paresis. E. D. Holland, Hot Springs, Ark.
140 Atypical Neurologic Syphilis. B. R. Tucker, Richmond, Va.
141 Wassermann Reaction in Relation to Diagnosis and Treatment. R. B. H. Gradwohl, St. Louis.
142 Simple and Efficient Contrast Stain for B. Diphtherine. G. McF. Mood, Charleston, S. C.
143 *Fifty Cases of Intestinal Parasites in Adults, with Attempt to Study Some Symptoms Caused by Them. H. L. McNeil, Galveston, Tex.
144 Sanitary Markets. M. G. Perrow, Lynchburg, Va.
145 Treatment of Fractures. R. W. Knox, Houston, Tex.
146 Treatment of Ununited Fractures. H. H. Trout, Roanoke, Va.
147 *Threatened and Real Gangrene of Extremities as Seen by Modern Surgeon. B. M. Bernheim, Baltimore.
148 Experiences in Spinal Surgery. R. T. Taylor, Baltimore.
149 Severe Crushing Injuries to Knee-Joint. W. F. Smith, Little Rock, Ark.
150 Treatment of Fracture of Femur by Means of Double Angular Plaster Splint. J. H. Downey, Gainesville, Ga.
151 Vascular Ligation in Tonsillar Fossa. J. W. Jervey, Greenville, S. C.
152 Intranasal Obstructions. G. A. O'Connell, Birmingham.

139 and 143. Abstracted in The Journal, Dec. 12, 1914, p. 2158.

147. **Threatened and Real Gangrene of Extremities.**—Gangrene of the extremities, Bernheim says, is an affection that occurs in the young as well as the old; it is of more frequent occurrence than most men believe; there are many different types, there are many different causes. The symptom most common to all forms is pain—pain that is most difficult to relieve, becoming toward the end all but unbearable. The condition is usually overlooked in its early stages because careful examination of the vascular apparatus of the extremities is not the rule with most medical men.

As to the proper line of treatment to be followed in dealing with those emboli that lodge in the arteries of the extremities, Bernheim believes that it is a mistake to expose the vessel and remove the thrombus for the simple reason that it invariably reforms. Wherever an embolus finds its resting place it becomes attached to the vessel wall at that point with the consequent destruction of its endothelial lining, and no matter how soon it is removed the result is the same, namely, a vessel is left which is hollow, but whose inner surface is rough and minutely torn. Being devoid of its normal glaze and being rough and minutely torn this wall forms the most favorable possible place for the deposition of fibrin, platelets and red and white corpuscles, so that within a few hours after the removal of a thrombus and the turning on of the renewed blood stream, another thrombus is invariably formed at the exact site of the old one.

Bernheim therefore strongly advises not the removal, but the short-circuiting, of the thrombus in these cases. A vein always accompanies the artery. Tie off the artery above and below the thrombus and do an end-to-end or a lateral suture between artery and vein above and below the ties. Or if the thrombus is so extensive that it is impossible or inadvisable to get below it, the author suggests a lateral suture between artery and vein above it, with a tie put on the vein proximal to the suture. This will give a reversed circulation, which will answer every purpose. The return flow will take care of itself, as it does without difficulty in every case in which this operation is done.

Texas State Journal of Medicine, Fort Worth

June, XI, No. 2, pp. 71-150

153 Development of American Medicine. F. D. Boyd, Fort Worth.
154 Life and Death; Twin Mysteries. C. M. Rosser, Dallas.

West Virginia Medical Journal, Wheeling

June, IX, No. 12, pp. 397-434

155 Early Diagnosis of Tuberculosis. J. W. Gilmore, Wheeling.
156 Pellagra. B. B. Sturdivant, Harding.
157 Pellagra in West Virginia Hospital for Insane. J. G. Pettit and C. Denham, Weston.
158 Effect of Pituitrin Extract in Sixty-One Cases of Parturition. J. L. Miller, Thomas.
159 Puerperal Eclampsia. U. G. Cook, Beckley.
160 Amebic Dysentery; Report of Case. T. E. Romine, Charleston.

Wisconsin Medical Journal, Milwaukee

June, XIV, No. 1, pp. 1-54

161 Some Deductions from Medical Examination of Five Thousand Students Entering University of Wisconsin. R. Van Valzah, Madison.
162 Cooperation of State Medical Societies with University Extension Movement. R. Sleyster, Waupun.
163 Present Status of Nervous Syphilis. E. M. Hammes, St. Paul.
164 Sporadic Cretinism. A. L. Beier, Chippewa Falls.
165 Plea for Corrective and Cosmetic Surgery of Nose. F. Pfister, Milwaukee.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

March, XXXVII, Parts 3 and 4, pp. 341-462

1 *Distortions of Visual Fields in Cases of Brain Tumor. H. Cushing and C. B. Walker.
2 *Demonstration of Spirocheta Pallida in Chronic Parenchymatous Encephalitis (Dementia Paralytica.) J. McIntosh and P. Fildes.
3 Cases of "Crossed Reflex" Associated with Pain; Bearing of Crossed Reflex on Theory of Existence of Automatic Spinal Centers. E. D. Macnamara and E. B. Gunson.
4 Case of Motor Dyspraxia and Paraphasia; Necropsy; Tumor in Supramarginal Convolution. E. G. Fearnsides.
5 *Undifferentiated Nucleus in Forebrain (Nucleus Subputaminalis). G. Ayala.

1. **Distortions of Visual Fields in Brain Tumor.**—In a series of 454 cases classified as tumor of the brain and analyzed by Cushing and Walker there have been 101 in which the lesion was of hypophysial or parahypophysial origin, and in eighty-one of these cases chiasmal involvement led to deformations of the fields of vision. These deformations tended at the time of admission to be bitemporal in twenty-six cases, homonymous in 12, were unclassifiable in eight cases, and the remaining thirty-five showed blindness in one or both eyes, making it difficult to tell in which group—bitemporal or homonymous—they belonged. In the majority of cases, whether of intrasellar or suprasellar tumor, the first perimetric indication of the process is shown by a slant in the boundary of an upper temporal form field and a correspondi g quadrantal defect in the color peripheries. In all stages the loss of color perception is usually in advance of that for form, and the condition in one eye is usually in advance of that in the other, so that every possible stage combination in the two eyes may be encountered.

When relief from pressure has been afforded by operative measures the recession of the defects takes place in a sequence, the reverse of that characterizing the stages of an advancing process. In the receding process relative paracentral scotomas often persist, as the functional vulnerability of the macular and paramacular fibers appear to be greater than that of the other fasciculi. Restoration of normal field peripheries is possible even when the process has advanced to or beyond typical half vision, and some vision may be regained even after blindness has occurred, provided it has not been of too long duration. In view of the prompt restorations in field outlines which may follow operative relief from pressure, it is evident that the so-called primary optic atrophy often does not represent an actual anatomic degeneration so much as a physiologic block to the transmission of visual impulses.

2. **Spirocheta Pallida in Parenchymatous Encephalitis.**—Seven cases of "dementia paralytica" were examined by McIntosh and Fildes and in six of these spirochetes were found by the dark-ground method, although when sections in these positive cases were cut the organisms were detected in only three. Five cases also were examined in which the symptoms suggested a diagnosis of "dementia paralytica." This diagnosis was, however, found on section to be incorrect. No spirochetes were found. All the cases examined had exhibited relatively acute manifestations before death, and the brains with one exception were not markedly wasted. The lesions on the whole appeared to be recent. The spirochetes were always confined to the gray matter; in one case only was a single specimen seen in the meninges. They were more or less superficial, and no constant relation could be observed between them and nerve cells or blood vessels. Some spirochetes indeed appeared to be applied to nerve cells, but this distribution was not striking. Further no connection was apparent between the organisms and cellular infiltrations; they appeared to be scattered quite fortuitously about the superficial layers of the cortex.

5. **Undifferentiated Nucleus in the Forebrain.**—While studying the structure of the different formations of the substantia perforata anterior in man in relation to the overlying ganglion mass of the nucleus lenticularis, a group of nerve cells of considerable size was observed by Ayala which he calls nucleus hypolenticularis, or more exactly, nucleus subputaminalis.

British Medical Journal, London

June 19, I, No. 2842, pp. 1033-1072

6 Fatigue Dyspepsia. G. Rankin.
7 Prognosis in Heart Disease. C. E. Lea.
8 *Investigation of Best Methods of Destroying Lice and Other Body Vermin. J. P. Kinloch.
9 *Wassermann Test. O. Heath.
10 Arteriovenous Aneurysm of Femoral Artery Successfully Treated by Operation. G. G. Gillon.

8. **Method of Destroying Lice and Body Vermin.**—For practical purposes, Kinloch states, the destruction of lice and nits is best secured by immersion of verminous garments and bedclothes in a petrol or benzene bath. Danger from fire and waste of petrol are avoided by using such a bath and extractor as are employed in a dry-cleaning apparatus. In such an apparatus 90 per cent. of the petrol or benzene is recovered for future use. A petrol or benzene bath is necessary, especially for uniforms and woollen garments generally. In cases in which the clothing is such that it is not injured by immersion in water, steeping the garments for half an hour at 12 C. (54 F.) in a soap solution containing 2 per cent. of trichlorethylen or 10 per cent. of tetrachlorethan secures destruction of lice and nits. For cleansing the body itself, bathing or sponging with soap solutions containing 2 per cent. of trichlorethylen or 10 per cent. tetrachlorethan gives the best results.

9. **Wassermann Test.**—The most important of the points in which the technic employed by Heath differs from the original method is the use of fresh normal human serum for the supply of complement, in place of guinea-pig's serum, the amount of the complement present being titrated for each batch of tests and 2 units (minimum hemolytic doses = m. h. d.) added to each tube, the serums tested having been inactivated.

Edinburgh Medical Journal

June, XIV, No. 6, pp. 409-504

11 Inversion of Sexensemble. D. B. Hart.
12 Pituitary Infantilism (Frohlich Type); Gigantism with Infantile Sexual Organs; Polyuria with Lesions of Pituitary Gland. B. Bramwell.
13 New Psychiatry. W. H. B. Stoddart.

Glasgow Medical Journal

June, LXXXIII, No. 6, pp. 401-475

14 Simple Peptic Ulcer and Malignant Disease of Stomach. (To be continued.) W. MacLennan.
15 Chorea. I. Mackenzie.
16 Scottish Women's Hospital in Serbia. M. W. Hutchison.

Lancet, London

June 19, I, No. 4790, pp. 1275-1322

17 Cervical Gland Tuberculosis. A. S. Griffith.
18 Rheumatism in Children. M. H. Williams.
19 Case of Tetragenus Septicemia. H. Robinson.
20 Nasal Flap and Modified Langenbeck Operations for Cleft Palate. G. S. Thompson.
21 *Complete Heart-Block with Higher Ventricular than Auricular Rate. E. Lea.
22 Case of War Wound Infection by Anthracoid Bacillus. A. W. Sheen.

21. **Complete Heart-Block.**—A case of complete heart-block is reported by Lea which presented the following unusual features: An abnormally high and persistent idioventricular rate of 50 to 60 beats per minute, with occasional irregularity of rhythm not wholly due to premature ventricular contractions. A period of sinal bradycardia of frequency 51, during which time the ventricular rate exceeded this. Auricular tachycardia of frequency 200 per minute following the injection of 1/50 grain of atropin sulphate. An unusual relationship between the auricular and ventricular beats during an apparent 3-1 block.

Archives des Maladies du Cœur, Etc., Paris

June, VIII, No. 6, pp. 149-192

23 *Heart Block Suspended by Atropin. (Bradycardies permanentes d'origine organique et d'origine inorganique: déblocage par l'atropine.) E. Cottin.
24 *Acute Coffee and Tea Poisoning. (Le caféisme aigu.) M. Roch.

23. **Heart Block Suspended by Atropin.**—In the first of the two cases described a man of 72 with cancer of the stomach had a pulse of 38 or 40 and the pulse curves confirmed the assumption of auriculoventricular dissociation, but no effect was apparent from injection of atropin. Cottin is inclined to ascribe this negative response to the atropin test to the age of the patient; the elderly are not very susceptible to atropin. The changes found in the bundle of His amply explained the heart block. The second patient was a woman of 34 with pulse of about 45. For a number of years she had had attacks of dizziness and partial syncopes; since 1910 the auriculoventricular dissociation has been complete and permanent. The atropin test has constantly demonstrated the nervous origin of the bradycardia. Each time after injection of 2 mg. of atropin sulphate the auricles and ventricles begin to beat together and with normal rhythm. The drug unblocks the heart for as long as its influence is felt. The patient has a moderate goiter and it is possible that pressure from this on the nerves may be the cause of the nervous bradycardia. It would be interesting to resect the thyroid to learn what effect this would have on the bradycardia, but the patient is so little incommoded by her heart block that she refuses any operation.

24. **Acute Coffee Poisoning.**—Roch writes from Geneva to comment on the frequency of coffee poisoning and its non-recognition as a factor in various nervous, circulatory or digestive disturbances. He quotes an old writer to the effect that coffee does not prevent sleep, it simply renders it unnecessary to sleep. He reviews the literature on the subject of acute poisoning and its syndrome. There may be symptoms more or less severe on the part of the nervous and cardiovas-

cular systems and the muscles, the latter including cramps, diarrhea and colic. No fatal case is on record, although the list of cases includes some children who ate handfuls of ground coffee.

Bulletin de l'Académie de Médecine, Paris

May 25, LXXIII, No. 21, pp. 619-637

25 Stenosis of Artery and Varices Complicating Old Gunshot Wounds of Nerves. O. Laurent.
26 Asphyxiating Gases from Bombs. C. Achard.
27 The Urine Findings in Patients with Frozen Feet. (Notes urologiques sur les malades atteints de gelures profondes des extrémités inférieures.) L. Tixier.
28 *The Tuberculin Reaction a Phenomenon of Immunity, Not of Anaphylaxis. (Signification générale des réactions tuberculiniques.) A. Jousset.

June 1, No. 22, pp. 639-669

29 Protection of Soldier's Head with Metal Cap. (Protection du crâne contre les blessures de guerre par la calotte métallique.) Le Dentu and Devraigne.
30 Grafting Operation for Pseudarthrosis of the Radius and Ulna After Gunshot Fracture. (Greffe par dédoublement osseux.) E. Delorme.
31 The Sensory, Motor, Vasomotor, Emotional and Other Factors in the Shock from a Wound in War. (De l'existence d'un "syndrome commotionnel," dans les traumatismes de guerre.) A. Mairet and others.
32 Extract of Barley in Typhoid. (Les injections intraveineuses d'hordénine dans la fièvre typhoide.) R. Mercier and Mme. W. C. Ratuld.
33 *Professional Training of the Maimed. (Les bases scientifiques de l'éducation professionnelle des mutilés.) J. Gautrelet.

28. **General Significance of the Tuberculin Reactions.**—Jousset declares that a positive reaction to tuberculin is generally regarded as impossible of occurrence in an organism virgin of tubercle bacilli, but he has produced it under these conditions in large animals immunized by injection of filtered and sterilized products of tubercle bacilli. The serum of the animals thus immunized acquires great therapeutic power and the animals are rendered immune to tubercle bacilli. They are entirely free from macroscopic or microscopic tuberculous lesions, and yet they give the finest local or general reactions to tuberculin it is possible to imagine. He has repeated this experience again and again on cattle and horses, all testifying that it is the immunization, not the presence of the tubercle bacilli, that is responsible for the reaction to tuberculin. The response to the tuberculin is thus an index of the progress toward immunity.

33. **Professional Reeducation of the Maimed.**—Gautrelet proposes to apply Taylor's science of business efficiency in training crippled soldiers, aiming not only to teach them a new trade if necessary, but to train them to obtain the maximum of results with the minimum of effort. The physical points should be registered for each so that not merely the man's tastes and inclinations but his physical aptitudes are to be considered in the training, uncrippling the crippled, as it were.

Berliner klinische Wochenschrift

May 31, LII, No. 22, pp. 569-596

34 *How to Combat Tendency to Cold Feet. (Kalte Füsse.) P. G. Unna.
35 Treatment of Shell Wounds. (Granatverletzungen.) W. Israel.
36 Simultaneous Vaccination Against Typhoid and Cholera. (Einzeitige Immunisierung mit Typhus- und Cholera-Impfstoff: Mischimpfstoff.) K. E. F. Schmitz.
37 *Gunshot Wounds of the Larynx. (Schussverletzungen des Kehlkopfes.) M. Scheier.
38 Technic for Revealing Tubercle Bacilli in Tissues under Microscopic Examination. (Antiformin zur Untersuchung der Gewebe und Organe.) C. Martelli.

34. **Tendency to Cold Feet.**—Unna ascribes the tendency to cold feet to the retention of the moisture of the foot and to inadequate blood supply. The arteries should be kept warm where they are most exposed, and he advocates wearing an ankle warmer, like a wrist warmer, only a little larger. Woolen and cotton stockings retain the moisture from the foot and keep it cold. This can be avoided, he says, by treating the cotton stockings with some substance that will permit their being written on with ink. When they thus have a glazed surface, like writing paper, they do not soak up water, and the foot keeps dry and warm. He gives a formula for this sizing for stockings: 12 parts collodium; 4 parts colophony; 4 parts castor oil; 16 parts alcohol and 64 parts ether. The shoes should be large enough to permit the wearing of two pairs of stockings and ankle warmer. The lining of the shoes should also be glazed with the above mixture, and the skin of the foot kept greased.

37. **Wounds of the Larynx.**—Scheier has had seven cases of this kind in a total of 2,500 wounded that have reached the base hospital in his charge. The seven men are recovering, but some will need an operation later to remove the scrap of shell. In one case the bullet had passed through the upper part of the thyroid cartilage, but the wound healed so promptly that the man returned to the front in two weeks.

Correspondens-Blatt für Schweizer Aerzte, Basel

June 5, XLV, No. 23, pp. 705-736

39 *Electric Muscular Exercise in Treatment of Obesity. (De la gymnastique électriquement provoquée d'après la méthode de Bergonié.) F. Chatillon.

39. **Electric Muscular Contractions in Treatment of Obesity.**—Chatillon has given the Bergonié electric apparatus a thorough trial in the treatment of obesity in twenty-two cases. The results were more satisfactory when the diet was regulated at the same time, but, even alone, a number of the patients lost from 4,000 to 6,000 gm. On a slightly reduced diet one lost 8,900 gm. No effect was apparent in one case after fifteen hours' application of the apparatus and great reduction of the diet. Another patient lost 409 gm. per hour of application plus dieting; nothing else had had any effect in this case.

Deutsche medizinische Wochenschrift, Berlin

May 27, XLI, No. 22, pp. 637-664

40 *Vaccination Against Camp Diseases. (Bekämpfung der Kriegsseuchen durch Schutzimpfung.) F. Sinnhuber.
41 *Treatment of Gunshot Wounds of the Extremities. G. Axhausen.
42 *Neurasthenia of the Heart. G. Graul.
43 *Gonorrheal Cystitis. F. Weinbrenner.
44 Extermination of Vermin in the Concentration Camps. (Vorschläge zur Entlausung von Gefangenenlagern.) E. E. Galewsky.
45 Emergency Sterilization of Drinking Water. (Zur Wasserversorgung der Truppen im Felde.) P. Trubsbach.

June 3, No. 23, pp. 665-696

46 Physical Requirements for Active Service and for Garrison Duty and Disability. (Felddienstfahigkeit, Garnisondienstfahigkeit und Dienstunbrauchbarkeit.) Christian.
47 *Wounds of Peripheral Nerves. F. Reichmann.
48 Influence on Irritability of the Heart of Courses of Alkaline Sulphate Mineral Waters. (Einfluss der Trinkkur mit glauber-salzhaltigen Quellen auf den Reizablauf im Herzen.) A. Strubell.
49 Appendix as Substitute for Part of Urethra. (Ersatz eines durch einen Schuss zerstörten Teils einer Harnröhre durch den Wurmfortsatz.) A. Rothschild.
50 The Field Ration of the Swiss Soldiers. (Zur Kriegsdiätetik.) E. Grandjean-Hirter.
51 *Depth and Duration of Action of Tincture of Iodin. J. Schumacher.
52 Reduction of Infant Death Rate. (Bekämpfung der Säuglingssterblichkeit eine Frage der Massenbelehrung.) Behr-Pinnow and P. Rissmann.

40. **Vaccination Against Typhoid, Typhus, Cholera and Dysentery.**—Sinnhuber gives the history of preventive vaccination against camp diseases, and relates that of the 444 typhoid cases in his service among the soldiers, 55 of the men had been vaccinated against typhoid, and 2 of these died; in one the disease was of a peculiarly malignant type.

41. **Active Treatment of Wounds of the Limbs in War.**—Axhausen commenced the war fully impressed with the necessity for strictly conservative treatment at the front, but soon became convinced that wounds with much destruction of tissue require more active measures. The dead and dying tissues must be got rid of, and there is no need to strive for asepsis. He states that he used the same instruments for the various cases, not attempting to boil them nor wash his hands between cases. The aim is to help Nature by coarse mechanical means; she takes care of all the rest. Delicate aseptic procedures are superfluous. The main point is to secure a good bleeding surface over the entire expanse of the wound, wiring fractured bones together and suturing muscles and nerves after proper freshening, embedding the sutured nerve in muscle tissue, tamponing the rest of the

wound, with drainage, counter drainage and immobilization. The temperature soon dropped to normal, and when the tampons and drains were removed the eighth or twelfth day, the environment was found free from irritation and the secretion was moderate. As a typical instance of what can be done in this line he relates the case of an officer whose destructive wound of the right elbow involved the ulnar nerve. Axhausen treated it on the above principles in November. By January the functional use of the sutured nerve had been regained and there is no trace of paralysis or contracture. None of these cases thus treated developed gas phlegmon, progressive pyogenic infection or tetanus.

42. **Neurasthenia of the Heart.**—Graul regards the constitutional neuropathic tendency as the clue to the diagnosis of what he calls neurasthenia of the heart and also as the guide to treatment. The difference in the pulse on reclining and standing is greater with a neurotic than with a sound heart, and the individual pants more readily under physical exertion. The pulse swings from extra fast to extra slow, neither bradycardia nor tachycardia being permanent. A functionally weak heart does not grow stronger under exercise, but requires physical and mental repose, change of scene and atropin if there is vagotony. Morphin and digitalis increase the tonus of the vagus.

43. **Gonorrheal Cystitis.**—Weinbrenner remarks that the benefit from sweats, stimulation of the emunctories and vomiting, in infectious diseases, is due probably in large measure to the fact that the losses of fluids in these ways modify the tissues to such an extent that the bacteria do not find them such a favorable culture medium. This consummation is hastened and magnified by refraining from eating, the tissues becoming more acid under the influence of fasting from food and drink. It is especially important in gonorrheal cystitis to render the tissues and the urine as acid as possible, that is, to reduce the alkalinity. This he accomplishes by restricting the intake of water to the utmost, avoiding all alkaline waters, allowing only animal food and drugs which intensify the acid reaction and soothe irritation while they have a disinfecting action. The effect of the drugs is magnified by the restriction of the intake of water, as they are not washed out of the system so soon and are less diluted. The thirst can be relieved by rinsing out the mouth with cool water and gargling with it. What fluids are allowed should be cold and be taken by the spoonful. Even with tormenting thirst, the patient should realize that the sooner the tissue reaction is modified, the less time the treatment will have to be kept up. The restriction of fluids must be enforced with especial strictness if there is danger of the inflammation spreading to involve the prostate, seminal vesicles or epididymis. The food should be limited to eggs, meat, fish, butter and cheese, avoiding bread, potatoes and other vegetables. The tendency to constipation must be combated regularly with castor oil—no alkalines. This aids in dehydrating the tissues. He gives to an otherwise healthy patient 1 gm. of sodium salicylate in a little water five times a day each time after food. Along with it he gives two 0.5 gm. capsules of oil of santal, a total of 5 gm. a day. This dosage may have to be modified for the elderly, and all the patients must be warned of certain possible by-effects. The kidneys should be tested beforehand and repeatedly during the course of treatment. In all the treatment it must be borne in mind that the body is to be helped, not hindered, in its material resistance. Warmth and rest in bed and local heat are useful adjuvants in cystitis from any cause. With treatment along these lines he has frequently witnessed cystitis rapidly retrogress when it had persisted for months unmodified by all other measures. He has often had patients with posterior urethritis and cystitis, even bleeding, throw off all their disturbances and present a limpid urine in three days. Even prostatitis may subside and the gonococci disappear without bed rest, but more than a few days is required for this, or a gentle rinsing out of the urethra may be required. He obtained similar good results in five women with painful gonorrheal parametritis. The same method of treatment also proved effectual in a number of cases of colon bacillus cystitis, but not in the more chronic cases, probably because the prostatitis was the primary process. Vegetables must be avoided on account of their alkali content, and also acid fruits, cider and wine, because their acids form alkaline salts and thus increase the alkalinity of the urine. Carbonated beverages have the same drawbacks and also tend to stimulate the sexual organs. He also forbids alcohol in any form.

47. **Wounds of the Peripheral Nerves.**—Reichmann advocates careful study and conservative treatment in every case of gunshot wound of the nerves that is encountered from three to six months after the injury. Spontaneous regeneration is possible for a nerve in the forearm up to three or six weeks and for a plexus up to one or two years. If the nerve did not call for immediate suture when the wound was first examined, it is better to wait until the wound has entirely healed. The conservative measures include electricity, massage, hot air, exercise and means to ward off contracture.

51. **Action of Iodin on the Tissues.**—Schumacher reports experiments which have apparently demonstrated that when tincture of iodin is applied to the tissues it forms an organic compound with the albumin in the secretions, and this penetrates deep into the tissues without undergoing any appreciable chemical transformation. He was surprised at the length of time during which this iodin-albumin compound could still be detected in the tissues; even after an interval of eight days it was still apparent.

Medizinische Klinik, Berlin

May 30, XI, No. 22, pp. 607-632

53 *Lip Reading for the Deaf. (Fürsorge für ertaubte und schwerhörige Krieger.) Haenlein.
54 Importance of Psychotherapy for Nervous Collapse and Melancholia Among the Troops. (Zur Entstehung, Vorhersage und Behandlung nervöser und depressiver Zustandsbilder bei Kriegsteilnehmern.) F. Mohr.
55 Immobilization of Fractures. (Zur Behandlung der Oberschenkelschussfrakturen.) O. Orth. (Neue Kriegsschiene.) A. Partos.
56 *Injurious Influences from Treatment with Superheated Air and Their Prevention. (Die diagnostisch-therapeutische Ausnutzung meiner Methode zur Funktionsprüfung der Gefässnerven. II) E. Weber.
57 *Nonoperative Treatment of Hernia as Indirect Cause of Death. (Operationslose Bruchbehandlung als mittelbare Todesursache.) G. Magnus.
58 The Gluteal Muscle Clonus—a sign of Pyramidal Tract Disease. H. Pfister.
59 *Death After Intraspinal Injection of Neosalvarsan. J. Zadek.
60 The Shelter Nests of the Anthropoid Apes. (Zur Psychologie der Anthropomorphen. Der Nestbau der Menschenaffen.) A. Sokolowsky.

June 6, No. 23, pp. 633-660

61 *Hypertrophy and Tumors of the Prostate. L. Casper.
62 Bacteriology of Intestinal Infections in the Field. (Untersuchungen an Darminfektionen leidender Soldaten.) H. Schroeder and O. Umnus.
63 Vaccine Therapy of Typhoid. G. Holler.
64 *Diagnosis and Treatment of Arteriomesenteric Occlusion of the Intestine in Children. (Zur Klinik des mesenterialen Darmverschlusses im Kindesalter.) E. Mayerhofer.
65 Treatment of Typhus. (Flecktyphus.) S. v. Waldheim.
66 The Blood Changes in Mice with Cancer. (Blutveränderungen bei Tumormausen.) H. Koenigsfeld and F. Kabierske.

53. **Training in Lip Reading for Deaf Soldiers.**—Haenlein remarks that the number of soldiers rendered irreparably deaf by war injuries is not large proportionally. The hearing is generally recovered, on one side at least. The cases of more or less total deafness are usually traceable to a traumatic neurosis, hysteria or direct injury of the internal ear. He emphasizes the necessity for training the deaf in lip reading, utilizing in particular the perception of vibrations. This is often peculiarly acute in the deaf. A deaf person may notice a blow on a table at some distance which is not felt nor heard by a person with good hearing. Learning lip reading with the aid of the fingers on the throat of the speaker, to feel the vibrations, gives excellent results in some cases. Many of the men develop a special aptitude for lip reading. One learned it so fast and so perfectly that it was hard to believe he was not simulating his deafness.

56. **To Overcome the Drawbacks of Treatment with Superheated Air.**—Extensive use is made of the local hot-air bath in

treatment of the wounded soldiers at Kiel, and Weber noticed that fully 90 per cent. of the men thus treated showed various disturbances after each application of the hot-air box, fatigue, slight headache, etc. The long-continued repetition of these disturbances during a protracted course of treatment with superheated air had better be avoided, and this can be done, he says, by applying cold to one leg for three or four minutes. The stimulus from the cold is felt by reflex action through all the innervation of the blood vessels, and normal conditions are restored at once. The principle is the same as with the stimulus from alternating cold and hot douches as a means of restoring normal conditions after concussion of the brain, as Weber described recently (summarized in these columns, June 5, p. 1949).

57. **Death as Indirect Consequence of Alcohol Injection Treatment of Hernia.**—The man in question had been given over 200 local injections of alcohol in the course of two years in the hope of curing the tendency to inguinal hernia on one side. The hernia had not been influenced, and he finally applied for operative treatment, but the alcohol had induced inflammation and adhesions and fatal ileus resulted.

59. **Death After Intraspinal Injection of Neosalvarsan.**—A man of 41 had chronic tabes with recurring gastric crises, and he was given an intralumbar injection of 0.0036 gm. neosalvarsan. He died the next day, after presenting the symptoms of acute hemorrhagic encephalitis. In a still more recent case, in a man of 25, the syndrome was identical and likewise fatal the day after an intravenous injection of salvarsan.

61. **Hypertrophy or Cancer of the Prostate.**—Casper compares the clinical picture in a case of each of these, pointing out the resemblance between them, both in symptoms and course. In both the first sign of trouble was tenesmus with pains, increasing at times and again subsiding under treatment. The general health began to run down in both, and pus and colon bacilli were found in the urine in both cases. The man with simple hypertrophy of the prostate improved at once after the bladder had been cleaned out; the pains subsided and the general health showed marked improvement. In marked contrast to this the course was consistently and unremittingly progressive in the cancer case. It was impossible to relieve the pains except by larger and larger doses of morphin. Rinsing out of the bladder, which had such a favorable influence in the hypertrophy case, had no effect on the condition in the cancer case.

With hypertrophy there is liable to be sudden bleeding from the prostate and it may keep up for days or weeks. With cancer the bleeding is usually insidious, sometimes only microscopic, but this may keep up a long time. If the bladder is already infected, catheterization can be done without delay, but otherwise from 100 to 300 gm. of residual urine does not call for the catheter, other things being equal. If the bladder is abnormally small the urine should be drawn. There is little prospect of a permanent cure from removal of the cancerous prostate; the cancer is usually too far advanced when first detected. Casper comments on his bitter disappointment with the use of radium and the Roentgen rays. No objective results were ever obtained in any case, and the slight transient subjective benefit did not surpass that realized by suggestion from any new treatment. If the pains are caused by the distention of the bladder, they can be cured by a suprapubic permanent fistula. Even with hypertrophy of the prostate he does not advise removing the organ unless for strict indications. Many men who are permanently dependent on the catheter live to a good old age, although some have pyelonephritis. Even when one's hand is apparently forced, yet severe diabetes, extensive cardiovascular or kidney changes, advanced arteriosclerosis and chronic general urosepsis forbid prostatectomy.

64. **Arteriomesenteric Occlusion in Children.**—Mayerhofer relates that a boy of 8 had intense spasms of pain following an apparently simple catarrhal stomach affection. The bowels had not moved for several days, but there was no fever. Under the ordinary measures he seemed to be recovering smoothly when a slight error in diet brought back the paroxysms of pain. The diagnosis wavered between occlusion from a foreign body, stenosis from ulceration, invagination, lead poisoning and pylorospasm, but the clinical picture was not altogether typical of either. The surgeon could not find anything to warrant a laparotomy in the child's debilitated condition. There was a history of a somewhat similar attack a year before. Toward the last the boy found some relief by getting up on his knees and boring his head deep into the pillows, as if he were going to turn a somersault. This instinctively assumed attitude in fact relieved the constriction of the bowel by the mesentery which necropsy revealed to be the cause of the trouble. Mayerhofer has not found any analogous case in a child on record. A prompt gastroenterostomy might have saved the child or possibly systematic application earlier of the knee-forehead position. Among the typical symptoms were the uncontrollable vomiting; lack of appetite; intense thirst; constipation; no blood in the stools; tendency to subnormal temperature; severely toxic facies; no meteorism, no peristalsis or nearly none; the dilated stomach was only rarely to be determined by percussion; the abdomen was soft, doughy, stiffening only during the spasm. There was a tender point to the right above the umbilicus; no large tumor could be palpated, but sometimes cords or small contracted loops; the pulse was small, the spine in lordosis, and the urine as in lordotic albuminuria. The pains ranged from extremely mild to spasms of great intensity; they radiated to the right from the tender point. Reclining aggravated the pains and they were relieved to some extent by swaying to and fro, seated; by active kyphosis and by the knee-forehead position. It is possible that certain cases described as "umbilical colic" may belong in this category.

Münchener medizinische Wochenschrift, Munich

May 18, LXII, No. 20, pp. 673-704

67 *Cardiovascular Disease in War. (Herz- und Gefässkrankheiten während der Kriegszeit.) E. Romberg, T. Schott and H. Ebret.

68 *Test Inoculation of Animals Directly Into the Spleen. (Beschleunigter Nachweis der Tuberkulose im Tierversuch durch Milzimpfung.) M. Damask and F. Schweinburg.

69 As the Operation is Commenced, the Elastic Balance of the Soft Parts is Upset by the Incision, Permitting the Foreign Body to Sink Deeper Into the Tissues. (Die Fremdkörper rücken häufig bei der Operation tiefer. Ursache: Störung des elastischen Gleichgewichtes der Gewebe durch die Inzision.) H. Wachtel.

70 *Disturbance in the Heart Action. (Störungen der Herztätigkeit.) E. Aschenheim and F. Merkel.

71 Heart Neuroses with Hyperesthesia of the Skin. Brasch.

72 *First Aid for Wounds of the Eyes in War. (Erste Wundbehandlung bei Augenverletzungen im Kriege.) C. Bahr.

73 Local Anesthesia. (Zur Verwendung der Lokalanästhesie.) J. E. Schmidt.

74 Treatment of Tetanus. H. Liebold.

75 Feeding a Patient After Extensive Destruction of the Jaw. (Die Ernährung von Verwundeten mit ausgedehnten Kieferzertrümmerungen.) T. Weishaupt.

76 Electric Probe for Bullets and Fragments of Shells. (Elektrische Fremdkörpersonde mit Annäherungsanzeigevorrichtung.) R. G. Cohen. (Kugelsucherapparat.) P. Jödicke.

67. **Heart Disturbances in the War.**—Romberg here analyzes his personal observations of heart disturbances in the troops at the front. In a number of cases they were traced to slight tonsillitis, bowel trouble, febrile catarrhs, disregarded abscess near a tooth, incipient tuberculosis, or, in one case, to a febrile cholecystitis, the men consulting the physician solely on account of the annoying palpitations of the heart, sense of oppression in the heart region during sleepless nights and sudden dyspnea or even syncope after severe exertion. The disturbances are those liable in any febrile or convalescent patient who does not keep still, or in the physically exhausted. The difficulty is to refrain from assuming organic trouble. One may be misled by the pressure and spreading out of the heart against the wall of the chest from excessive upward displacement of the diaphragm. This may be the result of flatulence or abdominal fat or of swallowing of air. Roentgenoscopy of the heart is instructive only, as a rule, when the tube is placed directly above

or at a distance of 5 or 6 feet. Purely nervous cardiovascular disturbances seem to be less common than during peace times; the men's minds are diverted from themselves. He has found cardiac neuroses rare and has seen no acquired neurasthenia. The manifestations of congenital neurasthenia have become remarkably attenuated in a number of men whose condition was familiar to him before the war. In others the condition has been much aggravated. In a number of the men under 40 the cardiovascular disturbances were traced to excessive smoking; in this group the disturbances came on without any connection with physical exertion, mostly during the night or on waking. In men over 40, excessive smoking caused more serious disturbances, the blood pressure running up and the heart showing objective signs of insufficiency. Iodin treatment of wounds has not caused any thyroid disturbances to his knowledge.

Many of the men with arteriosclerosis or syphilitic vascular trouble had had slight symptoms before the war, but in the majority there had been no signs of anything wrong. In these cases heart symptoms developed suddenly after some special physical strain, and four, five or six months elapsed before satisfactory improvement was evident. He has encountered occasional cases of what he calls juvenile arteriosclerosis. The artery walls feel thick; either the muscular wall is unusually thick or it behaves like a sclerotic artery. This is often associated with orthostatic albuminuria and there may be a hint of thyroid intoxication. In the majority of such cases the heart seems fully competent, but in the others acute dilatation follows severe physical exertion. It subsides under appropriate treatment, but, if this is neglected, prolonged and possibly severe insufficiency may follow. There may be a systolic, sometimes also an aortic murmur. The maximal blood pressure may be a little higher than normal.

Rest and digitalis, and only gradual resumption of physical exercise are the main reliance in all these forms of soldier's heart. Examination of the heart and pulse is not enough; the behavior of the other organs that influence the circulation must be investigated also and the previous history. Organic disturbances are found uncommonly frequent, he remarks, in conclusion, and arteriosclerosis is a frequent factor, but the cardiovascular system had been already damaged before the war.

Schott emphasizes that cardiovascular trouble in the soldiers on sick leave calls for complete repose, in bed at first. Any exercise or excitement is liable to aggravate the symptoms. Under rest and the usual measures improvement is the rule. Psychic measures proved effectual adjuvants in his experience. When the man has apparently recovered, Schott puts him through a course of graduated exercise, walking, then climbing or doing gymnasium work, until the cardiovascular system has been trained and has shown good resisting powers. The men were then allowed to return to the front, and all have borne the stress of the campaign since without apparent harm.

Ehret says that at the Hamburg hospital in his charge 1,820 soldiers have been treated for internal disease since the war began, and in 6.6 per cent. the men had been sent for treatment on account of heart disturbances. The various types observed had nothing special about them except the unusual frequency of arteriosclerosis in the younger men. Everything seems to indicate that the stress of the campaign is the sole factor responsible for this war sclerosis, as he calls it. In every case of actual heart disturbance there was evidence that this organ had not been entirely sound at the start.

68. **Improved Technic for Diagnostic Inoculation of Animals.**—Damask and others have noticed that the spleen usually shows pronounced tuberculous lesions in infected guinea-pigs, generally more than the liver, and he utilizes this fact to hasten the findings with diagnostic inoculations. He says that with a little practice it is a simple matter to inject the suspicious material directly into the spleen. The tuberculous lesions develop there exceptionally fast, and to an exceptional extent. The spleen is examined through a laparotomy. This permits repeated examinations later in the case of negative findings. In fourteen days, on an average, macroscopic lesions are evident in the spleen if the injected material was tuberculous.

70. **Heart Disturbances in the War.**—The hospital in Aschenheim's charge is not far back of the firing line, and he sees the men almost at once. He has been impressed with the frequency of neuroses of the heart among the soldiers. There were signs in these cases of a general nervous instability, a constitutional physical inferiority. In 74 per cent. the testicles were smaller than the average; in 50 per cent. the thyroid was a little larger than usual; the lymph glands were swollen in many, and the hair on the body was scanty; in short, the condition was typical of a readiness to yield to any disease that may happen along. He remarks that the systematic study of these *Krankheitsbereitschaften* has only just begun, and we must beware of linking effects with single causes until we know more about the subject. It seems evident, however, that under the stress of the campaign in certain persons the cardiovascular regulation has become paralyzed to a certain extent—thus we have a neurosis of the autonomic-sympathetic system. This occurs in men who present other indications of physical inferiority, and there is much to suggest that the glands with an internal secretion share in this inferiority. A long period for recuperation is necessary before such men can resume their service at the front.

Merkel found that during a recent fortnight 29 per cent. of the eighty-three Bavarian soldiers admitted to the hospital in his charge had been sent to the hospital on account of heart disturbances. The general proportion for all the soldiers was only 18 per cent. He regards this as evidence that considerable beer drinking has a deleterious influence on the heart. He was impressed also with the number of men who presented cardiovascular disturbances closely resembling those in severe cases of chlorosis in young girls.

72. **First Treatment of Wounds of the Eyes.**—Bahr advocates painting all the wounded tissues with tincture of iodin, saying that in his eight years' experience with industrial accidents of the eyes this has amply proved its efficiency in warding off infection. The eye is prepared with cocain if possible, and he avoids touching sound tissue with the iodin, as causing needless pain. The edges of the wound, the iris, the vitreous body and other prolapsed parts are dabbed with the iodin until they are dark brown. A layer of cotton is interposed before the lid is turned back, to protect it against needless contact with the iodin. An injured eye thus treated does not require redressing for two or three days. The pain at first is quite severe and keeps up for the day and night sometimes, but the eye is saved from infection as a rule.

Wiener klinische Wochenschrift, Vienna

May 20, XXVIII, No. 20, pp. 519-548

77 *Wounds of the Central Optic Nerve Tract; Two Cases. (Schussverletzungen der zentralen Sehbahnen.) F. Dimmer.
78 *Adsorption of Bacterial Toxins by Charcoal. II. R. Kraus and B. Barbara.
79 Primary Suture After Gunshot Wounds, Especially of the Brain. Barany. (See 84 below.)
80 Serotherapy Effectual in Epidemic Meningitis; Ten Cases. (Epidemische Genickstarre.) C. Brach and J. Fröhlich.
81 Typhoid Agglutination in Dysentery. (Positive Typhusreaktion bei Ruhr.) R. Marek.
82 Vasomotor and Trophic Disturbances After Wounds of Peripheral Nerves in War. R. Reznicek.

May 27, No. 21, pp. 549-578

83 Serodiagnosis by Dialysis; 120 Cases. (Die Abderhaldensche Dialysiermethode.) H. Keitler and K. Lindner.
84 *Inadvisability of Primary Suturing of Wounds. (Zur Frage der primaren Okklusion der Schusswunde durch Naht.) E. Ranzi.
85 *Gas Phlegmons. H. H. Schmid.
86 *Typhoid Serous Meningitis. J. Löw.
87 *Typhoid Parotitis. M. Cahanescu.
88 *Management of Typhoid. J. Feldner.
89 Difference in Heart Findings as Man Stands Relaxed or in Military Position. (Wichtige Fehlerquelle bei der Herzuntersuchung der Soldaten.) B. Molnar.
90 Biologic Study of Lice. (Züchtungsversuche von Läusen aus Nissen.) L. Zupnik.

77. **Injury of Central Optic Tract.**—Dimmer gives an illustrated description of two cases which throw light on the

structure of the central visual apparatus, especially when compared with Wilbrand's eight cases published in 1907 and Henschen's case in 1909. In Dimmer's cases vision had been much impaired at first, but gradually improved. The chief disturbance a few months later was homonymous scotoma, the features of which did not correspond to the Monakow theory. In the lower right quadrant of the visual field there was a patch of absolute blindness extending for about 20 degrees and almost identical in the two eyes; the outer outline alone varied slightly. The injury causing this loss of part of a quadrant must have been a destruction of a part of the center for vision at the upper margin of the calcarine fissure, probably in the rear portion of the fissure.

78. **Adsorption of Toxins by Charcoal.**—Kraus and Barbara report research and describe the technic with which they succeeded in demonstrating that charcoal adsorbs bacterial toxins both in the test tube and in the living body. They show that dysentery toxin, for instance, has its toxic properties nullified by the charcoal as effectually as by an antitoxin, and that this is not a reversible phenomenon. Dysentery toxin injected into a rabbit vein is eliminated by the mucosa of the cecum. In its passage through the mucous membrane it is liable to cause characteristic lesions at this point. After internal administration of charcoal by the mouth, the rabbit that had been given an intravenous injection of the dysentery toxin recovered. They accept this as evidence that the charcoal is liable to render harmless not only the toxin in the interior of the bowel, but also that in the bowel mucosa.

84. **Primary Suture of Wounds.**—Ranzi protests against some recent articles advocating primary occlusion of wounds by suture, even although Barany had nine recover of twelve men with wounds of the brain, treated in this way. Ranzi deplores the bringing up of the subject again, urging that all should heed Thiersch's remark, "I think the best thing to do is to leave gunshot wounds open, and to close the discussion of the subject."

85. **Gas Phlegmons.**—Schmid has encountered twenty-eight cases and they have convinced him that gas phlegmon with gangrene requires amputation without a moment's delay, as also deep gas phlegmons with fracture. Under other circumstances, extensive incisions and excisions of the affected portions of the skin and subcutaneous cellular tissue are usually sufficient to arrest the process.

86. **Typhoid Serous Meningitis.**—The symptoms of meningitis developed during convalescence from typhoid. Great relief was obtained by a lumbar puncture and recovery was soon complete.

87. **Typhoid Parotitis.**—Parotitis was encountered in sixteen of the 760 cases of typhoid in Cahanescu's service, and several of the men died. The typhoid was always unusually severe in these parotitis cases.

88. **Treatment of Typhoid.**—Feldner is an ardent advocate of the starvation treatment of typhoid, insisting that the experience of years has established that the disease runs its most typical and mildest course when the patients are not fed by the mouth. He says that Abderhalden's protective ferments amply explain the advantages from refraining from feeding typhoid patients. Nature takes away the appetite, as the protective ferments are needed in the blood to combat the bacteria and their products. When food is given by the mouth, the ferments have to go into the digestive tract to take care of the food, and the blood thus loses a large proportion of its means of defense. Saline infusion also promotes the vital, the defensive processes, he thinks, as it weakens some inhibiting function, by diluting the blood, and thus leaves free play to the defensive forces. In the test tube, intensity of agglutination may increase as the serum is more and more diluted, and there is every reason to assume that this occurs with saline infusion in the body. Hence treatment of typhoid, he declares, should consist of deprivation of all food, "absolute starvation," to divert the protective juices into the infected blood, and copious saline infusion for specific concentration of the defensive forces.

Zentralblatt für Chirurgie, Leipzig

May 29, XLII, No. 22, pp. 385-408

91 *Blocking the Lumbar Plexus. (Versuche, den Plexus lumbalis zu anasthesieren.) A. Schlesinger.

92 *How to Manage an Artificial Leg. (Ueber den Sitz des künstlichen Beines.) R. Suchier.

93 Dislocation of Little Toe. (Traumatische Luxation der I. Phalanx der rechten kleinen Zehe im Metakarpophalangealgelenk.) O. Orth.

91. **Blocking the Lumbar Plexus.**—Schlesinger's work was done on the cadaver and his illustrations show how simple and easy it is to reach the root of the fifth lumbar nerve between the transverse process of the fifth lumbar vertebra and that of the first sacral vertebra. At this point all the fibers comprising the lumbar plexus are crowded into one easily accessible space, so that the whole can be anesthetized at one injection. A frozen section of the region shows distinctly a cleft in the nerve, separating the fibers that diverge below to the front and rear. Schlesinger had but little chance to apply the method in the clinic on account of the war interfering, but in five attempts with a 1 or 2 per cent. solution of novocain the results seemed promising, and he urges others to try this paralumbar anesthesia, as he calls it.

92. **Support of Artificial Leg.**—Suchier has worn an artificial leg for twelve years, and relates a number of points he has learned from this experience. The skin in and around the inguinal region is exceptionally tender and sweats readily, so that it gets sore easily. No pressure should be allowed to come on the skin in this region. The weight should be supported by the tuberosity of the ischium, just as the acetabulum bears the weight on the femur in normal conditions. The tuberosity of the ischium naturally bears the weight of the body when sitting, and it should be utilized as the support for the artificial limb, rather than the sloping surface of any bone.

Zentralblatt für Gynäkologie, Leipzig

May 29, XXXIX, No. 22, pp. 369-392

94 *Cancer of Bartholin's Gland. H. Wittkopf.

94. **Cancer of Bartholin's Glands.**—Wittkopf knows of only twelve cases of cancer of the vulva in German literature, but in 1914 he encountered two cases in his service at Kiel. The women were 59 and 42, both of good family. Bleeding after a trauma or oozing was the first sign to call attention to the small tumor and ulceration in the rear of the labium major. The ulceration was 1 cm. in diameter in one case and 2 cm. in the other. Recovery proceeded smoothly after extirpation of the tumor and inguinal glands in each case, although delayed at first by thrombophlebitis in one case; the glands were already involved in this case. In a large proportion of the cases on record rapid recurrence was the rule. Wittkopf discusses the anatomy of the region and commends his method of giving an aftercourse of radium to supplement the operation. The radium was placed in the midst of the cavity left in the tissues. This might be supplemented by cross-fire Roentgen exposures. The main thing, however, is to recognize and remove such growths in their incipiency, and an exploratory excision should be made whenever the vulva shows anything even remotely suggesting cancer.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 27, XXXVI, No. 42, pp. 657-672

95 *The Herxheimer Reaction Must Not Mislead to Drop Specific Treatment. V. Panto.

96 *Rubber Sponge to Plug Hernial Opening; Two Cases. (2 casi di ernia operati da un anno col metodo degli innesti artificiali profondi di caucciu.) C. Scandola.

May 30, No. 43, pp. 673-688

97 *Pseudogastralgic Angina Pectoris. A. De Blasi.

June 3, No. 44, pp. 689-704

98 *Seroreaction to Cobra Venom as Sign of Cancer. (Nuova sieroreazione per la diagnosi di carcinoma.) C. B. Farmachidis.

99 The Uterus in a Femoral Hernia. (Caso di ernia crurale dell'utero.) L. Z. Colleoni.

95. **Herxheimer Reaction.**—Panto warns that the stormy reaction to beginning salvarsan treatment must not be inter-

preted as a sign of toxic action contraindicating further treatment. On the contrary, it is an urgent call to push treatment, as this alone puts an end to the disturbances from the syphilis and also from this reaction.

96. **Rubber Sponge in Treatment of Hernia.**—Scandola cuts a chunk of rubber sponge, grips it with forceps on each side and boils it hard, forceps and all, for fifteen minutes, the forceps holding it down under the water. After the hernia has been reduced he reenforces the defense against its return by implanting the chunk of rubber sponge in the depths of the canal and suturing the skin over it. In one of the two cases in which he applied the sponge, it fitted well into the femoral canal, but had to be removed later, as it induced a slight inflammatory reaction. In the other case it healed smoothly in place and has given no sign of its presence during the year to date. The sheet of sponge in this case was 2½ by 5 cm. in size and 0.5 cm. thick. In the other case a chunk the size of a nut was used. Fieschi's advocacy of rubber sponge for this purpose was mentioned in THE JOURNAL, lxii, Feb. 28, 1914, p. 735, "Regeneration of Tissues in Implanted Rubber Sponge."

97. **Pseudogastralgic Angina Pectoris.**—De Blasi's patient had what was apparently gastralgia, the attacks of pain in the stomach region accompanying ectasia of the aorta developing in the course of mild and chronic kidney disease. The man was a hearty eater and smoker. The paroxysmal pain in the epigastrium spread vaguely toward the heart region, and the pulse became small, while the pallor was extreme as the man writhed under the "gastralgia." No one suspected angina pectoris as the cause of the attacks of pain in the stomach region, but De Blasi, after witnessing one of the attacks, warned the family that any one might prove fatal, and his warning came none too soon.

98. **Cobra Venom Test for Cancer.**—Farmachidis gives an imposing array of tables showing the application of this biologic hemolysis test to 37 patients with carcinoma, 16 with sarcoma and 38 with various nonmalignant affections. The findings are given for each of the twelve applications of the test in each case with rabbit serum and again for six applications with guinea-pig serum in 18 cancer and 14 nonmalignant cases. He points to his tabulated findings as indicating beyond question that the reaction to the cobra venom is specific for carcinoma. With rabbit corpuscles, positive results were obtained in 86.48 per cent. of the carcinoma cases and constantly negative in the controls. With guinea-pig corpuscles, the reaction was positive in 100 per cent. of the carcinoma cases and, with the exception of one dubious reaction in one case, constantly negative in the nonmalignant controls. With sarcoma, the cobra venom arrests the hemolytic action of the serum; with carcinoma it induces hemolysis; with nonmalignant disease it has no influence on the behavior of the serum. He mixes the serum, the venom and the blood corpuscles, and keeps it at a temperature of 20 C. for two hours, then places it on ice for twelve hours. The corpuscles are washed four times in physiologic saline, and a 5 per cent. suspension in 0.85 per cent. salt solution is used in the test.

Pediatria, Naples

June, XXIII, No. 6, pp. 401-480

100 Lipase Content of Children's Blood. (Sul contenuto in lipasi del sangue nell'eta infantile.) V. Zamorani.
101 *Teratoma in Lumbar Region of Child of 2. B. Rosati.
102 *Malaria in Children at Palermo. S. Maggiore.

101. **Teratoma in Lumbar Region.**—Rosati devotes considerable space to the literature on congenital tumors in the lower part of the back, and describes with the histologic findings a case from his own experience. The tumor was about the size of an egg and implanted above the sacral region. There was rachischisis but no hernia of the meninges, and the teratoma was easily removed.

102. **Malaria in Children at Palermo.**—Maggiore found malaria in 38 infants less than 1 year old; in 17 under 2; in 11 under 3, and in 25 older children—a total of 91 malarial children in the last three years. The parasites were mostly of the estivo-autumnal type and the malaria was never pernicious. It displayed a marked tendency to become chronic, with frequent periods of latency.

Policlinico, Rome

May 23, XXII, No. 21, pp. 689-720

103 *Ear, Nose and Throat in the School. T. Mancioli.

May 30, No. 22, pp. 721-752

104 *Burns. (Cura razionale delle ustioni.) G. Frattin.

June 8, No. 23, pp. 753-784

105 *Treatment of Acute Peritonitis Without Draining. R. Carnelli.
106 *Eczema a Defensive Reaction. (Eczema-reazione di difesa.) P. Sabella.

103. **Prophylaxis of Ear, Nose and Throat Trouble in Schools.**—Mancioli's article is an abridged copy of a course of lectures he delivered on this subject at Rome last winter. Among the points especially featured is the danger for other children from a child that stammers; any disturbances in speech are unconsciously imitated by other children. He has found that a dental prothesis sometimes aided mechanically in the cure of stuttering, and operative measures may be needed to restore nose breathing. Systematic breathing and speaking exercises under wise training cure fully 70 per cent. of the children in three weeks. The physician should confer with the teacher, and the child be trained to deep breathing, supplementing physical gymnastics with breathing exercises. The child should take a deep breath before starting each sentence when reciting or reading aloud. There is a neuropathic factor in all forms of stammering. He says of deafmutes that a large proportion die of tuberculosis between the fifteenth and thirtieth years. History, he relates, records several deafmutes who attained fame, including Schutz, a Spanish sculptor; Sonton, an English artist; Berthier, dean of the National Institute of Paris; Wigam, a mathematician; Peyton, an artist; Monpellier and others. The Italian census of 1881 gave a proportion of 5.37 deafmutes per 10,000 inhabitants; 6.75 were registered in the United States; 10.18 and 10.23 in Norway and Sweden, up to the maximum of 13.07 in Austria and 24.52 in Switzerland, according to the statistics he cites.

104. **Treatment of Burns.**—Frattin washes the surrounding tissues and then the burn itself with soap and water and then he scrubs it with a brush very lightly or with a sponge dipped in soapy water. This removes the skin over the blisters or he cuts the blister skin off; it will be cast off spontaneously sooner or later. After the surface is thus completely cleared of dead and dying tissue, he flushes it copiously with a tepid salt solution, dabs it dry, and then covers with dry sterile compresses and over this a thick layer of cotton. The whole is fastened with absorbent bands, nothing impermeable being used. The region or limb must be immobilized. When the patient is first seen after the blisters are suppurating, he applies this same absolutely aseptic treatment, and the general condition improves at once as a rule. The fever drops and when the patient comes out from under the anesthetic he is free from pain. The first dressing can be left unmolested for eight or ten days. Then the dressings can easily be soaked off with tepid saline. The method is similar to that advocated by Lejars. General anesthesia is indispensable if the burn is extensive.

105. **Acute Peritonitis.**—Carnelli here reports six cases in which he followed the American position method of managing acute peritonitis from appendicitis, closing the abdomen without draining. He writes to commend the technic, as its value is not generally appreciated in Italy.

106. **Eczema a Defensive Reaction.**—Sabella relates that Gougerot has been rallying evidence to prove that eczema is the manifestation of a defensive reaction to noxious influences acting on the skin, that is, to some poison from within or without injuring the skin. Its chief feature is the edema of the upper layers of the skin, Nature thus striving to dilute the toxic substances and render them less harmful for the skin. The inflammation and the blister production show plainly the defensive nature of the process. It is aseptic in itself; when cocci are found they are secondary. The

essential anomaly is that the outer skin is unusually porous. This allows toxins to get into the skin both from within and without. A normal skin repels them more. Treatment of eczema, therefore, should be directed to reducing the amount of toxic influences acting on the skin, facilitating their elimination by other routes, compensating for deficient internal secretions by organ therapy, and in rebellious cases trying to wash the blood free of toxins by venesection and saline infusion. The inflammation should be combated with local measures, spraying and moist applications at first, then a period of inert applications, zinc oxid, etc., to ward off superposed infection, concluding with measures to stimulate repair. The influence of restriction of salt in kidney disease suggests the advantage of similar measures in eczema. After getting rid of the toxins causing the trouble and curing the defensive inflammatory reaction, it is a simple matter to cure all that is left then of the dermatosis.

Riforma Medica, Naples

May 29, XXXI, No. 22, pp. 589-616

107 *Meningococci Found in Noses of Horses. (Il meningococco nel muco nasale dei cavalli durante un'epidemia di meningite cerebro-spinale.) L. Mazzetti.

108 *Syphilitic Disease of the Heart. (La sifilide del cuore.) F. Soprana and C. Piazza. Commenced in No. 20.

June 5, No. 23, pp. 617-644

109 Defensive Elements in the Milk of Animals Immunized Against Tuberculosis. L. Sivori.

110 No Formation of Specific Antibodies in Course of Immunization of Reptiles and Amphibians. (Sulla formazione di anticorpi specifici nell'immunizzazione degli animali a sengue freddo.) L. Mazzetti.

111 Study of Loss of Power to Recognize Shape of Objects by Touch. (Astereognosi.) U. Buzano.

112 Cancer of the Head of the Pancreas. C. Silvan.

107. **Meningococcus Carriers.**—Mazzetti found 600 carriers of meningococci among 2,000 men in the garrison at Capua, where cerebrospinal meningitis was epidemic at the time. Then the disease seemed to have been controlled by the vigorous isolation and other prophylactic measures enforced, and twenty-three days passed without a new case. Then two new developed and nearly 200 new carriers were found. No further cases developed among the infantry, but there were twenty more cases in the cavalry. Whence these could have derived their meningococci was the question. It was finally solved by the discovery of a diplococcus in the nasal mucosa of six, out of twenty-eight horses examined, apparently the same as the Weichselbaum meningococcus. Cultures which showed every feature of the meningococcus were made from two of the horses. In 1902 Calamida reported the isolation from the middle ear of a dog of a diplococcus apparently identical with the meningococcus. Mazzetti merely reports the above suggestive facts, as he was unable to follow them up farther, having been ordered to Naples as soon as the epidemic had been conquered.

108. **Syphilitic Heart Disease.**—Soprana and Piazza present an extensive study of the clinical picture and necropsy findings in syphilitic lesions in the heart, with considerable bibliography. The clinical picture with myocardium syphilitic lesions and the pathologic anatomic findings still have many puzzling features. One case is described with the histologic findings in which the acquired syphilitic changes were in the pulmonary artery, and of a gummatous nature. There are no pathognomonic symptoms of syphilitic heart disease, but it should be suggested by its development in the young, the intense dyspnea independent of changes in the kidneys or other organs, the rapid modifications in the precordial area, the lack of benefit from ordinary heart tonics, and the improvement under treatment for syphilis. The Wassermann reaction does not prove that the heart disease is of syphilitic origin; it merely indicates that the patient is syphilitic. Asystolia with notable insufficiency on the part of the heart, without other known cause, should always suggest possible syphilis, especially when ordinary heart tonics fail. Early differentiation is possible only as a rule when the coronaries or the aorta are predominantly or exclusively affected, and yet the outcome depends on the differential diagnosis before irreparable lesions are installed. Potassium iodid in large doses, with mercury and with salvarsan, if the kidneys are sound, will generally relieve, even when it is too late for a cure.

Brazil-Medico, Rio de Janeiro

May 1, XXIX, No. 17, pp. 129-136

113 Two Alleged New Species of Flagellates. (Metopus nasutus n. sp. e M. caudatus n. sp.) A. da Cunha.

114 Physiotherapy in Brazil. T. Dodsworth. (To be continued.)

May 8, No. 18, pp. 137-144

115 New Classification of Brazilian Family of Insects. (Revisão dos Acantocephalos brazileiros, I. fam. Gigantorhynchidae Hamann, 1892.) L. Travassos.

Hygiea, Stockholm

LXXVII, No. 9, pp. 465-512

116 *Arteriosclerosis of the Abdominal Vessels. (Arteriosklerosi i tarmkärlen—och ileus.) J. A. Hedlund.

117 *Pseudotabes of Hypophysis Origin. G. Kahlmeter.

118 Colloid Cancer of the Breast. A. Rubenson.

116. **Arteriosclerosis of the Abdominal Vessels.**—Hedlund comments on the rarity of arteriosclerosis affecting the abdominal vessels. When it occurs it is liable to induce symptoms suggesting angina pectoris, gastric trouble or attacks of meteorism. In a case he describes in detail the syndrome induced was that of fatal ileus. The patient was a workingman of 61 who for two years had complained of stomach trouble. Then came two attacks of severe colic within five days, followed in two days by the ileus. At the operation the next day, over 4 feet of the ileum was resected. The man did not rally, and necropsy revealed advanced arteriosclerosis almost exclusively affecting the vessels of the walls of the lower part of the large intestine. There was calcification at some points. Some were entirely obliterated, but no mechanical obstruction of the bowel was found at any point. Differentiation is difficult; the symptoms may be dependent on spasmodic contraction of the arteries affected or of the part of the bowel wall involved, or there may be arteriosclerotic neuralgia. Treatment can be only symptomatic.

117. **Hypophysis Pseudotabes.**—Kahlmeter has encountered two cases of the syndrome suggesting typical tabes except that the Wassermann was negative and that the Roentgen rays revealed a tumor in the hypophysis. His cases were closely similar to some compiled by Oppenheim, including one from his own experience. Kahlmeter's first case was in a man of 39 who claimed to be of regular habits and free from venereal disease, and who has four healthy children. Always healthy till 1912, he noticed after a trauma that he saw double and then the left visual field became restricted. A few months later vision was also impaired in the right eye and in a few months was lost entirely in this eye. Headache and difficulty in maintaining the balance and in walking soon followed. By the end of a year he had spasms of pains in his legs. There were no disturbances on the part of the stomach or bladder but the man was impotent. The atrophy of the papilla was exactly like that of tabes, as also the loss of the knee-jerk, but the roentgenogram cleared up the diagnosis by showing a tumor that had destroyed the sella turcica. Kahlmeter's second patient was a man of 50 whose optic atrophy and glycosuria were accompanied by such a complete change of character or loss of character during the last year that it seemed to indicate progressive paralysis, as also the lack of the knee-jerk, but here too the Wassermann was negative and the sella turcica was seen to be the seat of a destructive process. With acromegaly glycosuria is not infrequent, but it is rare with other forms of hypophysis disease. Kahlmeter has found one case on record in which diabetes accompanied a hypophysis tumor without acromegaly. There was bitemporal hemianopsia and the Roentgen rays showed destruction of the sella turcica. There was also a tendency to myxedema and the thyroid showed sclerotic atrophy to some extent. Review of the literature reveals too many instances of glycosuria with a hypophysis tumor for this to be a mere casual coincidence. The various theoretical questions raised by his two cases are discussed in detail, especially Cushing's views and the results of Schweiger's and others' research.